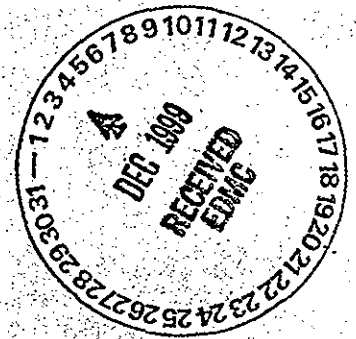


0052086

# Waste Tank Summary Report for Month Ending September 30, 1999



Prepared for the U.S. Department of Energy

**FLUOR DANIEL HANFORD, INC.**  
Richland, Washington



Hanford Management and Integration Contractor for the  
U.S. Department of Energy under Contract DE-AC06-99RL14047

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# **Waste Tank Summary Report for Month Ending September 30, 1999**

**B. M. Hanlon**  
Lockheed Martin Hanford Corp.

Date Published  
November 1999

Prepared for the U.S. Department of Energy

**FLUOR DANIEL HANFORD, INC.**

P.O. Box 1000  
Richland, Washington



Hanford Management and Integration Contractor for the  
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## WASTE TANK SUMMARY REPORT

B. M. Hanlon

### ABSTRACT

*This report is the official inventory for radioactive waste stored in underground tanks in the 200 Areas at the Hanford Site. Data that depict the status of stored radioactive waste and tank vessel integrity are contained within the report. This report provides data on each of the existing 177 large underground waste storage tanks and 63 smaller miscellaneous underground storage tanks and special surveillance facilities, and supplemental information regarding tank surveillance anomalies and ongoing investigations. This report is intended to meet the requirement of U. S. Department of Energy-Richland Operations Office Order 435.1 (DOE-RL, July 1999, Radioactive Waste Management, U. S. Department of Energy-Richland Operations Office, Richland, Washington) requiring the reporting of waste inventories and space utilization for Hanford Tank Farm tanks.*

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METRIC CONVERSION CHART		
1 inch	=	2.54 centimeters
1 foot	=	30.48 centimeters
1 gallon	=	3.80 liters
1 ton	=	0.90 metric tons
$^{\circ}\text{F} = \left( \frac{9}{5} ^{\circ}\text{C} \right) + 32$		
1 Btu/h = 2.930711 E-01 watts (International Table)		

# WASTE TANK SUMMARY REPORT FOR MONTH ENDING SEPTEMBER 30, 1999

Note: Changes from the previous month are in bold print.

## I. WASTE TANK STATUS

Category	Quantity	Date of Last Change
Double-Shell Tanks <sup>b</sup>	28 double-shell	10/86
Single-Shell Tanks	149 single-shell	1966
Assumed Leaker Tanks	67 single-shell	07/93
Sound Tanks	28 double-shell	1986
	82 single-shell	07/93
Interim Stabilized Tanks <sup>a</sup>	119 single-shell	11/97
Not Interim Stabilized <sup>c</sup>	30 single-shell	11/97
Intrusion Prevention Completed	108 single-shell	09/96
Controlled, Clean, and Stable <sup>f</sup>	36 single-shell	09/96
Watch List Tanks <sup>d</sup>	22 single-shell	12/98 <sup>e</sup>
	6 double-shell	06/93
Total	28 tanks	

<sup>a</sup> Of the 119 tanks classified as Interim Stabilized, 64 are listed as Assumed Leakers. (See Table I-1)

<sup>b</sup> Six double-shell tanks are currently included on the Hydrogen Watch List and are thus prohibited from receiving waste in accordance with "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the *National Defense Authorization Act for Fiscal Year 1991*, November 5, 1990, Public Law 101-510.

<sup>c</sup> Three of these tanks are Assumed Leakers (BY-105, BY-106, SX-104). (See Table H-1)

<sup>d</sup> See Section A tables for more information on Watch List Tanks.

<sup>e</sup> Dates for the Watch List tanks are "officially added to or removed from the Watch List" dates. Eighteen tanks were removed from the Organics Watch List in December 1998; two tanks still remain on this watch list. (See Table A-1, Watch List Tanks, for further information.)

<sup>f</sup> The TY tank farm was officially declared Controlled, Clean, and Stable (CCS) in March 1996. The TX tank farm and BX tank farms were declared CCS in September 1996. (BX-103 has been declared to have met current interim stabilization criteria, and is included in CCS - see also Appendix I).

## II. WASTE TANK INVESTIGATIONS

This section includes all single- or double-shell tanks or catch tanks which are showing surface level or interstitial liquid level (ILL) decreases, or drywell radiation level increases in excess of established criteria.

### A. Assumed Leakers or Assumed Re-leakers: (See Appendix C for definition of "Re-leaker")

This section includes all single- or double-shell tanks or catch tanks for which an off-normal or unusual occurrence report has been issued, or for which a waste tank investigation is in progress, for assumed leaks or re-leaks. Tanks/catch tanks will remain on this list until either a) completion of Interim Stabilization, b) the updated occurrence report indicates that the tank/catch tank is not an assumed leaker, or c) the investigation is completed.

There are no formal leak investigations in progress. There are no tanks for which an off-normal or unusual occurrence report has been issued for assumed leaks or re-leaks.

### B. Tanks with increases indicating possible intrusions:

This section includes all single-shell tanks and related receiver tanks for which the surveillance data show that the surface level or ILL has met or exceeded the increase criteria, or are still being investigated.

Candidate Intrusion List: Increase criteria in the following tanks indicate possible intrusions.

Tank 241-B-202  
 Tank 241-BX-101  
 Tank 241-BX-103  
 Tank 241-BY-103  
 Tank 241-U-111

Catch Tank 241-AX-152: The liquid level in this catch tank was steady around 66.75 inches from the startup of Project W-030, Tank Farm Ventilation System, in March 1998 until late August 1998. The level then began to decrease. The October 1998 reading of 65 inches is 1.75 inches below the summer average. This is an active catch tank, routinely pumped, and deviations from baseline are not applicable per OSD-31. The decrease represents a significant change in trend and it is apparent that tank conditions changed around the end of August 1998.

Resolution Status: Discrepancy Report #98-853 was issued on November 4, 1998. One possible cause under investigation is a change in flow path, causing an increase in evaporation. The tank was pumped down to 2.25 inches on November 13, 1998. Since that time the level has decreased to 0.00 inches. The Discrepancy Report will remain open and catch tank AX-152 will remain on the alert list until an engineering investigation is complete. Work package ES-99-00133 was generated to perform an airflow rate assessment in the tank, and install a camera. This activity is scheduled for FY2000.

## III. SURVEILLANCE AND WASTE TANK STATUS HIGHLIGHTS

### 1. Single-Shell Tanks Saltwell Jet Pumping (See Table E-6 footnotes for further information)

Tank 241-C-106 - Waste removal operations were initiated on November 18, 1998. Commencement of sluicing (sludge removal) began the process of waste removal in the highest heat-generating single-shell storage tank. Wastes from C-106 will be pumped underground through a new specially constructed pipeline to AY-102. The ventilation system for AY-102 is designed for the anticipated heat load of the waste from C-106.

Sluicing of C-106 in September 1999 removed 15.3 inches of sludge. The cumulative total sludge removed following the sluicing was 68.6 inches. (See also Table E-6, Tank Inventory, for preliminary liquid/solids volumes).

**Tank 241-S-102** - No pumping took place in September 1999; pumping was interrupted on August 9, 1999, by a problem with a valve. Pumping will resume after repairs are completed. A total of 38.1 Kgallons has been pumped from this tank since pumping started in March 1999.

**Tank 241-S-103** - Saltwell pumping commenced on June 4, 1999. In September 1999, 900 gallons were pumped; a total of 18.1 Kgallons has been pumped from this tank since pumping started in June 1999.

**Tank 241-S-106** - Pumping restarted on April 15, 1999, after an earlier pumping campaign in the 1980s. In September 1999, 5.4 Kgallons were pumped; a total of 195.0 Kgallons has been pumped from this tank since pumping began in the 1980s.

**Tank 241-SX-104** - No pumping took place in September 1999; pumping was interrupted on July 27 by a leaking saltwell pump. Pumping will not resume until the pump can be repaired or replaced. A total of 231.3 Kgallons has been pumped from this tank since pumping started in the late 1980s.

**Tank 241-SX-106** - In September 1999, 14.6 Kgallons were pumped; a total of 133.0 Kgallons has been pumped from this tank since start of pumping in October 1998.

**Tank 241-T-104** - No pumping took place in September 1999; the tank is currently undergoing stabilization evaluation and pumping operations are not expected to resume. An in-tank video is scheduled for October 1999. A total of 149.5 Kgallons has been pumped from this tank since start of pumping in March 1996.

**Tank 241-T-110** - No pumping took place in September 1999; the tank is currently undergoing stabilization evaluations. An in-tank video is scheduled for October 1999. A total of 50.3 Kgallons has been pumped from this tank since start of pumping in May 1997.

## **2. Double-Shell Tank 241-SY-101 Waste Level Increase**

Tank 241-SY-101 exhibited gas release events due to generation and retention of flammable gas. Waste level was used as an indirect measure of retained gas inventory. A mixer pump was installed in the tank in July 1993, which circulates liquid wastes from the tanks upper layer down to the bottom where jet nozzles discharge the fluid about two feet from the bottom. This prevents gas bubbles from building up at the bottom, and results in venting of small steady gas releases, rather than in large infrequent gas releases. Since early 1997, the surface level has been rising in spite of regular mixer pump operations.

**Resolution Status:** On February 11, 1998, the PRC recommended that the DOE-RL declare an Unreviewed Safety Question (USQ) over the continued level growth observed in this tank. DOE has modified the 406-inch and 422-inch mixer pump operational controls to allow additional mixer pump and characterization operations. The contractor has established a multi-disciplinary team to solve the level growth issues in SY-101. The prime near-term focus is to transfer approximately 100,000 gallons out of SY-101.

Since April 1999, the surface level has remained relatively constant, indicating that gas release rates have equaled the estimated gas generation rate.

Equipment and instrumentation were installed in September 1999 to transfer approximately 100 Kgallons of waste from SY-101 to SY-102. Actions needed to support the first transfer from SY-101 during the 1<sup>st</sup> Quarter FY2000 are on schedule.

**APPENDIX A**

**WASTE TANK SURVEILLANCE MONITORING TABLES**

TABLE A-1. WATCH LIST TANKS

September 30, 1999

These tanks have been identified as Watch List Tanks in accordance with Public Law 101-510, Section 3137, "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," (1990). These tanks have been identified because they "... may have a serious potential for release of high-level waste due to uncontrolled increases in temperature or pressure."

Single-Shell Tanks			Double-Shell Tanks		
Tank No.	Watch List	Officially Added to Watch List	Tank No.	Watch List	Officially Added to Watch List
A-101	Hydrogen	1/91	AN-103	Hydrogen	1/91
AX-101	Hydrogen	1/91	AN-104	Hydrogen	1/91
AX-103	Hydrogen	1/91	AN-105	Hydrogen	1/91
C-102	Organics	5/94	AW-101	Hydrogen	6/93
C-103	Organics	1/91	SY-101	Hydrogen	1/91
C-106	High Heat	1/91	SY-103	Hydrogen	1/91
S-102	Hydrogen	1/91	6 Tanks		
S-111	Hydrogen	1/91	TANKS BY WATCH LIST		
S-112	Hydrogen	1/91			
SX-101	Hydrogen	1/91	<u>Hydrogen</u> A-101 AX-101 AX-103 S-102 S-111 S-112 SX-101 SX-102 SX-103 SX-104 SX-105 SX-106 SX-109 T-110 U-103 U-105 U-107 U-108 U-109 AN-103 AN-104 AN-105 AW-101 SY-101 SY-103 25 Tanks		
SX-102	Hydrogen	1/91			
SX-103	Hydrogen	1/91	<u>Organics</u> C-102 C-103 2 Tanks		
SX-104	Hydrogen	1/91			
SX-105	Hydrogen	1/91	<u>High Heat</u> C-106 1 Tank		
SX-106	Hydrogen	1/91			
SX-109	Hydrogen because other tanks vent thru it	1/91	22 Single-Shell tanks 6 Double-Shell tanks 28 Tanks on Watch Lists		
T-110	Hydrogen	1/91			
U-103	Hydrogen	1/91	22 Tanks		
U-105	Hydrogen	1/91			
U-107	Hydrogen	12/93			
U-108	Hydrogen	1/91			
U-109	Hydrogen	1/91			

All tanks were removed from the Ferrocyanide and 18 tanks from Organics Watch Lists; see Table A-2.

**TABLE A-2. ADDITIONS/DELETIONS TO WATCH LISTS BY YEAR**  
 September 30, 1999

Added/Deleted dates may differ from dates that tanks were officially added to the Watch Lists. (See Table A-1).

	Ferrocyanide	Hydrogen	Organics	High Heat	Total Tanks (1)		
					SST	DST	Total
1/91 Original List - Response to Public Law 101-5	23	23	8	1	47	6	52
Added 2/91 (revision to Original List)	1 T-107				1		1
Total - December 31, 1991	24	23	8	1	48	6	53
Added 8/92		1 AW-101				1	1
Total - December 31, 1992	24	24	8	1	48	6	54
Added 3/93			1 U-111		1		
Deleted 7/93	-4 (BX-110) (BX-111) (BY-101) (T-101)				-4		
Added 12/93		1 (U-107)			0		
Total - December 31, 1993	20	25	9	1	45	6	51
Added 2/94			1 T-111		1		
Added 5/94			10 A-101 AX-102 C-102 S-111 SX-103 TY-104 U-103 U-105 U-203 U-204		4		
Deleted 11/94	-2 (BX-102) (BX-106)				-2		
Total - December 1994 thru December 1995	18	25	20	1	48	6	54
Deleted 6/96	-4 (C-108) (C-109) (C-111) (C-112)				-4		
Deleted 9/96	-14 (BY-103) (BY-104) (BY-105) (BY-106) (BY-107) (BY-108) (BY-110) (BY-111) (BY-112) (T-107) (TX-118) (TY-101) (TY-103) (TY-104)				-10		
Deleted 12/98			18 (A-101) (AX-102) (B-103) (S-102) (S-111) (SX-103) (SX-106) (T-111) (TX-105) (TX-118) (TY-104) (U-103) (U-105) (U-106) (U-107) (U-111) (U-203) (U-204)		-12		
Total - December 1996 thru September 1999	0	25	2	1	22	6	28

(1) Eighteen of the 20 tanks were removed from the Organics Watch List in December 1998; eight of the tanks removed from the Organics List are also on the Hydrogen Watch List; therefore, the total tanks added/deleted depends upon whether a tank is also on another list.

See table A-1 for current Watch List Tanks.



TABLE A-3. TEMPERATURE MONITORING IN WATCH LIST TANKS (Sheet 1 of 2)

September 30, 1999

All Watch List tanks are reviewed for increasing temperature trends. Temperatures in these tanks are monitored by the Tank Monitor And Control System (TMACS), unless indicated otherwise.

Temperatures are taken in the waste unless in-waste thermocouples are out of service. Temperatures below are the highest temperatures recorded in these tanks during this month.

Temperatures in Degrees F.Total Waste in Inches

(Total waste in inches is calculated from Inventory tables and size of tank, not surface level readings)

Hydrogen (Flammable Gas)			Organics		
<u>Tank No.</u>	<u>Temp.</u>	<u>Total Waste (inches)</u>	<u>Tank No.</u>	<u>Temp.</u>	<u>Total Waste (inches)</u>
A-101	147	324	C-102	82	149
AX-101	128	249	C-103	115	67
AX-103	110	40	2 Tanks		
S-102	102	207			
S-111	88	224			
S-112	83	239			
SX-101	132	168			
SX-102	141	192			
SX-103	159	236			
SX-104	143	217			
SX-105	166	237			
SX-106	103	145			
SX-109 (1)	138	96			
T-110	66	123			
U-103	85	161			
U-105	88	147			
U-107	78	143			
U-108	86	166			
U-109	83	164			
AN-103	106	348			
AN-104	106	384			
AN-105	99	410			
AW-101	98	410			
SY-101	124	405			
SY-103	95	270			
25 Tanks					

High Heat		
<u>Tank No.</u>	<u>Temp.</u>	<u>Total Waste (inches)</u>
C-106 (2)	128	14
1 Tank		
(Sluicing began November 18, 1998, in tank C-106)		

18 tanks have been removed from the Organics Watch List. See Table A-2 for list and dates.  
22 Single-Shell Tanks and 6 Double-Shell Tanks remain on the Watch List

**TABLE A-3. TEMPERATURE MONITORING IN WATCH LIST TANKS**  
(sheet 2 of 2)

Notes:Unreviewed Safety Question(USQ):

When a USQ is declared, special controls are required, and work in the tanks is limited. There are currently no USQs on single-shell tanks. There is a USQ on double-shell tank SY-101 for liquid-level increase.

Hydrogen/Flammable Gas:

These tanks are suspected of having a significant potential for hydrogen/flammable gas generation, entrapment, and episodic release. The USQ associated with these tanks was closed in September 1998. Twenty-five tanks (19 SST and 6 DST) remain on the Hydrogen Watch List.

Organic Salts:

These tanks contain concentrations of organic salts  $\geq 3$  weight% of total organic carbon (TOC)(equivalent to 10 wt% sodium acetate). The USQ associated with these tanks was closed in October 1998, and 18 organic complexant tanks were removed from the Organic Watch List in December 1998. Two organic solvent tanks (C-102 and C-103) remain on the Organic Watch List.

High Heat:

These tanks contain heat generating strontium-rich sludge and require drainable liquid to be maintained in the tank to promote cooling.

Active ventilation:

There are 15 single-shell tanks on active ventilation (eight are on the Watch List as indicated by an asterisk):

C-105	SX-107
C-106 *	SX-108
SX-101 *	SX-109 *
SX-102 *	SX-110
SX-103 *	SX-111
SX-104 *	SX-112
SX-105 *	SX-114
SX-106 *	

Footnotes:

- (1) Tank SX-109 has the potential for flammable gas accumulation only because other SX tanks vent through it.
- (2) Tank C-106 is on the Watch List because in the event of a leak without water additions the tank could have exceeded temperature limits resulting in unacceptable structural damage. **Sluicing of C-106 has been completed and liquid and sludge have been removed to the point that cooling water no longer needs to be added. A request was sent to DOE-HQ in September 1999 for removal of tank C-106 from the High Heat Load Watch List.**

TABLE A-4. TEMPERATURE MONITORING IN NON-WATCH LIST TANKS

September 30, 1999

SINGLE-SHELL TANKS WITH HIGH HEAT LOADS (>26,000 Btu/hr)

Nine tanks have high heat loads for which temperature surveillance requirements are established by HNF-SD-WM-TSR-006, Rev 0-D, *Tank Waste Remediation System Technical Safety Requirements*, Stickney, 1997.

Only one of these tanks (241-C-106) is on the High Heat Watch List. In an analysis, WHC-SD-WM-SARR-010, Rev 1, *Heat Removal Characteristics of Waste Storage Tanks*, Kummerer, 1995, it was estimated that nine tanks have heat sources >26,000 Btu/hr, which is the new parameter for determining high heat load tanks. See also document HNF-SD-WM-BIO-001, Rev 1, *Tank Waste Remediation System Basis for Interim Operation*, Noorani, 1998.

Temperatures in these tanks did not exceed TSR requirements for this month, and are monitored by the Tank Monitor and Control System (TMACS). All high heat load tanks are on active ventilation.

<u>Tank No.</u>	<u>Temperature (F.)</u>	<u>Total Waste In Inches</u>	(Total Waste In Inches is calculated from inventory table and tank size, not surface level readings)
C-106 (1)	128 (Riser 14)	14	
	108 (Riser 8)	34	
SX-103	159	242	
SX-107	168	43	
SX-108	185	37	
SX-109	138	96	
SX-110	164	28	
SX-111	185	51	
SX-112	150	39	
SX-114	177	71	
9 Tanks			

Notes:

(1) C-106 is on the High Heat Load Watch List.

A request was sent to DOE-HQ in September 1999 for removal of tank C-106 from the High Heat Load Watch List.

SINGLE SHELL TANKS WITH LOW HEAT LOADS (<26,000 Btu/hr)

There are 119 low heat load non-watch list tanks. Temperatures in tanks connected to TMACS are monitored by TMACS; temperatures in those tanks not yet connected to TMACS are manually taken semiannually in January and July. Temperatures obtained were within historical ranges for the applicable tank.

No temperatures have been obtained for several years in the tanks listed below. Most of these tanks have no thermocouple tree.

<u>Tank No.</u>	<u>Tank No.</u>
BX-104	TX-101
BY-102	TX-110
BY-109	TX-114
C-204	TX-116
SX-115	TX-117
T-102	U-104
T-105	

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 1 of 6)

September 30, 1999

The following table indicates whether Single-Shell tank monitoring was in compliance with the requirements as specified in the applicable documents as of the last day of the applicable month:

## NOTE:

All Watch List and High Heat tank temperature monitoring is in compliance. (4)

All Dome Elevation Survey monitoring is in compliance.

All Psychrometrics monitoring is in compliance (2).

Drywell monitoring no longer required (5).

In-tank photos/videos are taken "as needed"

## LEGEND:

(Shaded)	= in compliance with all applicable documentation
N/C	= noncompliance with applicable documentation
O/S	= Out of Service
Neutron	= LOW readings taken by Neutron probe
POP	= Plant Operating Procedure, TO-040-650
MT/FIC/ENRAF	= Surface level measurement devices
OSD	= Operating Spec. Doc., OST-T-151-00013, 00030, 00031
N/A	= Not applicable (not monitored, or no monitoring schedule)
None	= Applicable equipment not installed
BIO/TSR	= Basis for Interim Operations/Technical Safety Requirements

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1) (OSD)			LOW Readings (OSD)(5,7) Neutron
	Watch List	High Heat			MT	FIC	ENRAF	
A-101	X			LOW	None	None		
A-102				None	None		None	None
A-103				LOW	None	None		
A-104				None	None	None		None
A-105				None	None	None	None	None
A-106				None	None	None		None
AX-101	X			LOW	None	None		(B)
AX-102				None	None	None		None
AX-103	X			None	None	None		None
AX-104				None	None	None		None
B-101				None	None		None	None
B-102				ENRAF	None	None		None
B-103				None	None		None	O/S
B-104				LOW		None	None	
B-105				LOW		None	None	
B-106				FIC	None		None	None
B-107				None		None	None	None
B-108				None	None		None	None
B-109				None		None	None	None
B-110				LOW		None	None	
B-111				LOW	None		None	
B-112				ENRAF	None	None		None
B-201				MT		None	None	None
B-202				MT		None	None	None
B-203				MT		None	None	None
B-204				MT		None	None	None
BX-101				ENRAF	None	None		None
BX-102				None	None	None		None
BX-103				ENRAF	None	None		None
BX-104			None	ENRAF	None	None		None
BX-105				None	None	None		None
BX-106				ENRAF	None	None		None
BX-107				ENRAF	None	None		None

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS  
149 TANKS (Sheet 2 of 6)

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1) (OSD)			LOW Readings (OSD)(5,7) Neutron
	Watch List	High Heat			MT	FIC	ENRAF	
BX-108				None	None	None		None
BX-109				None	None	None		None
BX-110				None	None	None		None
BX-111				LOW	None	None		
BX-112				ENRAF	None	None		None
BY-101				LOW		None	None	
BY-102			None	LOW		None	None	
BY-103				LOW	None	None		
BY-104				LOW		None	None	
BY-105				LOW		None	None	
BY-106				LOW		None	None	
BY-107				LOW		None	None	
BY-108				None		None	None	None
BY-109			None	LOW	None	O/S	None	
BY-110				LOW	None	None		
BY-111				LOW	None	None		
BY-112				LOW		None	None	
C-101				None		None	None	None
C-102	X			None	None			None
C-103	X			ENRAF	None	None		None
C-104				None	None	None		None
C-105				None	None	None		None
C-106 (3)(5)	X	X		ENRAF	None	None		None
C-107				ENRAF	None	None		None
C-108				None		None	None	None
C-109				None		None	None	None
C-110				MT		None	None	None
C-111				None		None	None	None
C-112				None	None	None		None
C-201				None		None	None	None
C-202				None		None	None	None
C-203				None		None	None	None
C-204			None	None		None	None	None
S-101				ENRAF	None	None		
S-102	X			ENRAF	None	None		
S-103				ENRAF	None	None		
S-104				LOW	None	None		
S-105				LOW	None	None		
S-106				ENRAF	None	None		
S-107				ENRAF	None	None		None
S-108				LOW	None	None		
S-109				LOW	None	None		
S-110				LOW	None	None		
S-111	X			ENRAF	None	None		
S-112	X			LOW	None	None		
SX-101	X			LOW	None	None		
SX-102	X			LOW	None	None		
SX-103	X	X		LOW	None	None		
SX-104	X			LOW	None	None		
SX-105	X			LOW	None	None		
SX-106	X			ENRAF	None	None		
SX-107		X		None	None	None		None
SX-108		X		None	None	None		None

**TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS**  
**149 TANKS (Sheet 3 of 6)**

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1) (OSD)			LOW Readings (OSD)(5,7) Neutron
	Watch List	High Heat			MT	FIC	ENRAF	
SX-109	X	X		None	None	None		None
SX-110		X		None	None	None		None
SX-111		X		None	None	None		None
SX-112		X		None	None	None		None
SX-113				None	None	None		None
SX-114		X		None	None	None		None
SX-115			None	None	None	None	None	None
T-101				None	None	None		None
T-102			None	ENRAF	None	None		None
T-103				None	None	None		None
T-104				LOW	None	None		
T-105			None	None	None	None		None
T-106				None	None	None		None
T-107				ENRAF	None	None		None
T-108				ENRAF	None	None		None
T-109				None	None	None		None
T-110	X			LOW	None	None		
T-111				LOW	None	None		
T-112				ENRAF	None	None		None
T-201				MT	None	None	None	None
T-202				MT	None	None	None	None
T-203				None	None	None	None	None
T-204				MT	None	None	None	None
TX-101			None	ENRAF	None	None		None
TX-102				LOW	None	None		
TX-103				None	None	None		None
TX-104				None	None	None		None
TX-105				None	None	None		None (8)
TX-106				LOW	None	None		
TX-107				None	None	None		None
TX-108				None	None	None		None
TX-109				LOW	None	None		
TX-110			None	LOW	None	None		
TX-111				LOW	None	None		
TX-112				LOW	None	None		
TX-113				LOW	None	None		
TX-114			None	LOW	None	None		
TX-115				LOW	None	None		
TX-116			None	None	None	None		None
TX-117			None	LOW	None	None		
TX-118				LOW	None	None		
TY-101				None	None	None		None
TY-102				ENRAF	None	None		None
TY-103				LOW	None	None		
TY-104				ENRAF	None	None		None
TY-105				None	None	None		None
TY-106				None	None	None		None
U-101				MT	None	None	None	None
U-102				LOW	None	None		
U-103	X			ENRAF	None	None		
U-104			None	None	None	None	None	None
U-105	X			ENRAF	None	None		
U-106				ENRAF	None	None		



**TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS**  
**149 TANKS (Sheet 4 of 6)**

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1) (OSD)			LOW Readings (OSD)(6,7) Neutron
	Watch List	High Heat			MT	FIC	ENRAF	
U-107	X			ENRAF	None	None		
U-108	X			LOW	None	None		
U-109	X			ENRAF	None	None		
U-110				None	None	None		None
U-111				LOW	None	None		
U-112				None		None	None	None
U-201				MT		None	None	None
U-202				MT		None	None	None
U-203				None	None	None		None
U-204				ENRAF	None	None		None
<b>Catch Tanks and Special Surveillance Facilities</b>								
A-302-A	N/A	N/A	N/A	(6)	None	None		None
A-302-B	N/A	N/A	N/A	(6)		None	None	None
ER-311	N/A	N/A	N/A	(6)	None		None	None
AX-152	N/A	N/A	N/A	(6)		None	None	None
AZ-151	N/A	N/A	N/A	(6)	None		None	None
AZ-154	N/A	N/A	N/A	(6)		None	None	None
BX-TK/SMP	N/A	N/A	N/A	(6)		None	None	None
A-244 TK/SMP	N/A	N/A	N/A	(6)	None	None	None	None
AR-204	N/A	N/A	N/A	(6)			None	None
A-417	N/A	N/A	N/A	(6)	None	None	None	None
A-350	N/A	N/A	N/A	(6)	None	None	None	None
CR-003	N/A	N/A	N/A	(6)	None	None	None	None
Vent Sta.	N/A	N/A	N/A	(6)		None	None	None
S-244 TK/SMP	N/A	N/A	N/A	(6)		None	None	None
S-302	N/A	N/A	N/A	(6)	None	None		None
S-304	N/A	N/A	N/A	(6)	None	None		None
TX-244 TK/SMP	N/A	N/A	N/A	(6)	None	None	None	None
TX-302-B	N/A	N/A	N/A	(6)		None	None	None
TX-302-C	N/A	N/A	N/A	(6)	None	None		None
U-301-B	N/A	N/A	N/A	(6)	None	None		None
UX-302-A	N/A	N/A	N/A	(6)	None	None		None
S-141	N/A	N/A	N/A	(6)	O/S	None	None	None
S-142	N/A	N/A	N/A	(6)	O/S	None	None	None
Totals:	22	9	N/C: 0		N/C: 0	N/C: 0	N/C: 0	N/C: 0
149 tanks	Watch List Tanks (4)	High Heat Tanks (4)						

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS -149 TANKS  
(Sheet 5 of 6)

## Footnotes:

1. All SSTs have either manual tape, FIC, or ENRAF surface level measuring devices. Some also have zip cords.

ENRAF gauges are being installed to replace FICs (or sometimes manual tapes). The ENRAF gauges are being connected to TMACS, but many are currently being read manually from the field. See Table A-7 for list of ENRAF installations.

2. High heat tanks have active exhausters; psychrometrics can be taken in the high heat tanks. Psychrometric readings are taken on an "as needed" basis with the exception of tanks C-105 and C-106. Hanford Federal Facility Agreement and Consent Order, "Washington State Department of Ecology, U. S. Environmental Protection Agency, and U. S. Department of Energy," Fourth Amendment 1994 (Tri-Party Agreement) requires psychrometric readings to be taken in C-105 and C-106 on a monthly frequency. Also, SX-farm now has psychrometrics taken monthly.
3. C-106 is the only tank on the high heat load list included on the High Heat Watch List. **In September 1999 a request was made to DOE-HQ to remove tank C-106 from the High Heat Load Watch List.**
4. Temperature readings may be regulated by OSD, POP, or BIO (BIO only regulates high heat load tanks). Temperatures cannot be obtained in 13 low heat load tanks (see Table A-4). The OSD does not require readings or repair of out-of-service thermocouples for the low heat load ( $\leq 40,000$  Btu/h) tanks. However, the POP requires that attempts are to be made semiannually in January and July to obtain readings for these tanks.

Temperatures in some tanks cannot be taken in the waste because the waste level is lower than the lowest thermocouple in these tanks.

Temperatures for many tanks are monitored continuously by TMACS; see Table A-8, TMACS Monitoring Status.

5. Document OSD-T-151-00031, "Operating Specifications for Tank Farm Leak Detection," REV C-0, January 13, 1999, requires that single-shell tanks with the surface level measurement device contacting liquid, partial liquid, or floating crust surface, will be monitored for leak detection on a daily basis. Tanks with a solid surface will be monitored for leak detection on a weekly basis by taking neutron scan data from a Liquid Observation Well (LOW), if an LOW is present. Tanks with a solid surface but without LOWs will not be monitored for leak detection if the tank has been interim stabilized, until an LOW is installed.

This OSD revision does not require drywell surveys to be taken. (Drywell scans are being taken around C-106, as required by the Waste Retrieval Sluicing System, Spectral Gamma Waste Management). The OSD specifies what leak detection methods are to be used for each tank, and the requirements if the readings are not taken on the required frequency or if equipment is out of service.

6. Leak detection for the catch tanks is performed by monitoring for the buildup of liquid in the secondary containment (for most tanks with secondary containment) or for decrease in the liquid level for those tanks without secondary containment or secondary containment monitoring.

Catch tanks 240-S-302 is monitored for intrusions only, and is not subject to leak detection monitoring requirements until liquid is present above the intrusion level.

Weight Time Factor is the surface level measuring device currently used in A-417, A-350 and 244-A-Tank/Sump. DCRT CR-003 is inactive and measured in gallons.



**TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS - 149 TANKS**  
(Sheet 6 of 6)

7. Document SD-WM-TI-605, REV. 0, dated January 1994, describes the rationale for Liquid Observation Well (LOW) installation priority. This priority is based on tank leak status, tank surface condition, and tank stabilization status. Also included is a listing of tanks with the waste level being below two feet which have no priority assigned because no effort will be made to install LOWs in the near future. LOW probes are unable to accurately monitor interstitial liquid levels less than two feet high.

Tanks which will not receive LOWs:

A-102	BX-101	C-201	T-106
A-104	BX-103	C-202	T-108
A-105	BX-105	C-203	T-109
AX-102	BX-106	C-204	TX-107
AX-104	BX-108	SX-110	TY-102
B-102	C-108	SX-113	TY-104
B-103	C-109	SX-115	TY-106
B-112	C-111	T-102	U-101
		T-103	U-112

Total - 34 Tanks

8. TX-105 - the LOW was in riser 8; the riser has been removed and the LOW has not been monitored since January 1987. Liquid levels are being taken in riser 9 by ENRAF and recorded in TMACS.
9. AX-101 - LOW readings are taken by gamma sensors.

**TABLE A-6. DOUBLE-SHELL TANKS MONITORING COMPLIANCE STATUS**  
 28 TANKS (Sheet 1 of 2)  
 September 30, 1999

The following table indicates whether Double-Shell tank monitoring was in compliance with the requirements as specified in the applicable documents as of the last day of the applicable month.

**NOTE:**

Dome Elevation Surveys are not required for DSTs.

Psychrometrics and in-tank photos/videos are taken "as needed" (2)

**LEGEND:**

(Shaded) = In compliance with all applicable documentation

N/C = Noncompliance with applicable documentation

FIC/ENRAF = Surface level measurement devices

M.T.

OSD = OSD-T-151-0007, OSD-T-151-0031

None = no M.T., FIC or ENRAF installed

O/S = Out of Service

W.F. = Weight Factor

N/A = Not Applicable (not monitored or no monitoring schedule)

Rad. = Radiation

Tank Number	Watch List	Temperature Readings (3) (OSD)	Surface Level Readings (1) (OSD)			Radiation Readings		Annulus (OSD)
						Leak Detection Pits (4) (OSD)		
			M.T.	FIC	ENRAF	W.F.	Rad. (6)	
AN-101				None			N/A	
AN-102					None		N/A	O/S
AN-103	X			None			N/A	
AN-104	X		O/S	None			N/A	O/S
AN-105	X		O/S	None			N/A	
AN-106					None		N/A	
AN-107					None	O/S	N/A	
AP-101			O/S	None		O/S (7)	N/A	
AP-102				None		O/S (7)	N/A	
AP-103				None		O/S (7)	N/A	
AP-104			O/S	None		O/S (7)	N/A	
AP-105				None		O/S (7)	N/A	
AP-106				None		O/S (7)	N/A	
AP-107				None		O/S (7)	N/A	
AP-108				None		O/S (7)	N/A	
AW-101	X		O/S	None		O/S (7)	N/A	
AW-102					(5)		N/A	
AW-103				None			N/A	
AW-104				None			N/A	
AW-105				None			N/A	
AW-106				None			N/A	
AY-101				None		O/S	N/A	O/S
AY-102				None			N/A	O/S
AZ-101				None			N/A	O/S
AZ-102					None		N/A	
SY-101	X		None	None			N/A	
SY-102				None			N/A	
SY-103	X		O/S	None		O/S	N/A	
Totals: 28 tanks	6 Watch List Tanks	N/C: 0	N/C: 0	N/C: 0	N/C: 0	N/C: 0	N/C: 0	N/C: 0

**TABLE A-6. DOUBLE-SHELL TANKS MONITORING COMPLIANCE STATUS - 28 TANKS**  
(Sheet 2 of 2)

Footnotes:

1. Some double-shell tanks have both FIC and manual tape which is used when the FIC is out of service. Noncompliance (N/C) will be shown when no readings are obtained. ENRAF gauges are being installed to replace FICs. The ENRAF gauges are being connected to TMACS, but some are currently being read manually.
2. Psychrometric readings are taken on an "as needed" basis. No psychrometric readings are currently being taken in the double-shell tanks.
3. OSD specifies double-shell tank temperature limits, gradients, etc.
4. Applicable OSD and HNF-IP-0842, latest revisions, are used as guidelines for monitoring Leak Detection Pits. See also (6) and (7) below.
5. AW-102 has ENRAF, FIC and M.T. At some point the FIC will be removed.
6. USQ TF-97-0038, dated April 28, 1997, specifies discontinuing the use of leak detection pit radiation monitoring equipment in all double-shell tank farms where the leak detection pits are used as tertiary leak detection. This applies to all double-shell tank farms.
7. Leak Detection Pit weekly readings are being obtained by Instrument Technicians in these tanks:  
     AP-103C (for tanks AP-101 - 104)  
     AP-105C (for tanks AP-105 - 108)

**TABLE A-7. ENRAF SURFACE LEVEL GAUGE INSTALLATION AND  
DATA INPUT METHODS**  
September 30, 1999

<b>LEGEND</b>											
SACS			= Surveillance Analysis Computer System								
TMACS			= Tank Monitor and Control System								
Auto			= Automatically entered into TMACS and electronically transmitted to SACS								
Manual			= Manually entered directly into SACS by surveillance personnel, from Field Data sheets								
<b>EAST AREA</b>						<b>WEST AREA</b>					
Tank No.	Installed Date	Input Method	Tank No.	Installed Date	Input Method	Tank No.	Installed Date	Input Method	Tank No.	Installed Date	Input Method
A-101	09/95	Auto	B-201			S-101	02/95	Auto	TX-101	11/95	Auto
A-102			B-202			S-102	05/95	Auto	TX-102	05/96	Auto
A-103	07/96	Auto	B-203			S-103	05/94	Auto	TX-103	12/95	Auto
A-104	05/96	Manual	B-204			S-104	05/99	Auto	TX-104	03/96	Auto
A-105			BX-101	04/96	Auto	S-105	07/95	Auto	TX-105	04/96	Auto
A-106	01/96	Auto	BX-102	06/96	Auto	S-106	06/94	Auto	TX-106	04/96	Auto
AN-101	08/96	Auto	BX-103	04/96	Auto	S-107	06/94	Auto	TX-107	04/96	Auto
AN-102			BX-104	05/96	Auto	S-108	07/95	Auto	TX-108	04/96	Auto
AN-103	08/95	Auto	BX-105	03/96	Auto	S-109	08/95	Auto	TX-109	11/95	Auto
AN-104	08/95	Auto	BX-106	07/94	Auto	S-110	08/95	Manual	TX-110	05/96	Auto
AN-105	08/95	Auto	BX-107	06/96	Auto	S-111	08/94	Auto	TX-111	05/96	Auto
AN-106			BX-108	05/96	Auto	S-112	05/95	Auto	TX-112	05/96	Auto
AN-107			BX-109	08/95	Auto	SX-101	04/95	Auto	TX-113	05/96	Auto
AP-101	06/99	Auto	BX-110	06/96	Auto	SX-102	04/95	Auto	TX-114	05/96	Auto
AP-102	08/99	Auto	BX-111	05/96	Auto	SX-103	04/95	Auto	TX-115	05/96	Auto
AP-103	08/99	Auto	BX-112	03/96	Auto	SX-104	05/95	Auto	TX-116	05/96	Auto
AP-104	07/99	Auto	BY-101			SX-105	05/95	Auto	TX-117	06/96	Auto
AP-105	08/99	Auto	BY-102	09/99	Manual	SX-106	08/94	Auto	TX-118	03/96	Auto
AP-106	08/99	Auto	BY-103	12/96	Manual	SX-107	08/99	Auto	TY-101	07/95	Auto
AP-107	08/99	Auto	BY-104			SX-108	08/99	Auto	TY-102	09/95	Auto
AP-108	08/99	Auto	BY-105			SX-109	09/98	Auto	TY-103	09/95	Auto
AW-101	08/95	Auto	BY-106			SX-110	08/99	Auto	TY-104	06/95	Auto
AW-102	05/96	Auto	BY-107			SX-111	09/99	Auto	TY-105	12/95	Auto
AW-103	05/96	Auto	BY-108			SX-112	09/99	Auto	TY-106	12/95	Auto
AW-104	01/96	Auto	BY-109			SX-113	08/99	Auto	U-101		
AW-105	06/96	Auto	BY-110	02/97	Manual	SX-114	08/99	Auto	U-102	01/96	Manual
AW-106	06/96	Auto	BY-111	02/99	Manual	SX-115	08/99	Manual	U-103	07/94	Auto
AX-101	09/95	Auto	BY-112			SY-101	07/94	Auto	U-104		
AX-102	09/98	Auto	C-101			SY-102	06/94	Manual	U-105	07/94	Auto
AX-103	09/95	Auto	C-102			SY-103	07/94	Auto	U-106	08/94	Auto
AX-104	10/96	Auto	C-103	08/94	Auto	T-101	05/95	Manual	U-107	08/94	Auto
AY-101	03/96	Auto	C-104	04/99	Manual	T-102	06/94	Auto	U-108	05/95	Auto
AY-102	01/98	Auto	C-105	05/96	Manual	T-103	07/95	Manual	U-109	07/94	Auto
AZ-101	08/96	Manual	C-106	02/96	Auto	T-104	12/95	Manual	U-110	01/96	Manual
AZ-102			C-107	04/95	Auto	T-105	07/95	Manual	U-111	01/96	Manual
B-101			C-108			T-106	07/95	Manual	U-112		
B-102	02/95	Manual	C-109			T-107	06/94	Auto	U-201		
B-103			C-110			T-108	10/95	Manual	U-202		
B-104			C-111			T-109	09/94	Manual	U-203	09/98	Manual
B-105			C-112	03/96	Manual	T-110	05/95	Auto	U-204	06/98	Manual
B-106			C-201			T-111	07/95	Manual			
B-107			C-202			T-112	09/95	Manual			
B-108			C-203			T-201					
B-109			C-204			T-202					
B-110						T-203					
B-111						T-204					
B-112	03/95	Manual									
Total East Area: 53						Total West Area: 77					

130 ENRAFs installed: 103 automatically entered into TMACS, 27 manually entered into SACS

TABLE A-8. TANK MONITOR AND CONTROL SYSTEM (TMACS)

September 30, 1999

*Note: Indicated below are the number of tanks having at least one operating sensor monitored by TMACS.*

*Some tanks have more than one sensor: multiple sensors of the same type in a tank are not shown in the table (for example: 10 tanks in BY-Farm have at least one operating TC sensor and 3 tanks in BY Farm have at least one operating RTD sensor).*

## Acceptance Testing Completed: Sensors Automatically Monitored by TMACS

EAST AREA	Temperatures		ENRAF Level Gauge	Pressure (b)	Hydrogen (c)	Gas Sample Flow
	Thermocouple Tree (TC)	Resistance Thermal Device (RTD)				
Tank Farm						
A-Farm (6 Tanks)	1		3		1	1
AN-Farm (7 Tanks)	7		4	7	3	3
AP-Farm (8 Tanks)			8			
AW-Farm (6 Tanks)	6		6		1	1
AX-Farm (4 Tanks)	3		4		1	
AY-Farm (2 Tanks)			2			
AZ-Farm (2 Tanks)						
B-Farm (16 Tanks)	1					
BX-Farm (12 Tanks)	11		12			
BY-Farm (12 Tanks)	10	3				
C-Farm (16 Tanks)	15	1	3	1		
TOTAL EAST AREA (91 Tanks)	54	4	42	8	6	5
WEST AREA						
S-Farm (12 Tanks)	12		12	1	3	3
SX-Farm (15 Tanks)	14		14	1	7	7
SY-Farm (3 Tanks) (a)	3		2	1	2	2
T-Farm (16 Tanks)	14	1	3		1	1
TX-Farm (18 Tanks)	13		18			
TY-Farm (6 Tanks)	6	3	6			
U-Farm (16 Tanks)	15		6	4	6	6
TOTAL WEST AREA (86 Tanks)	77	4	61	7	19	19
TOTALS (177 Tanks)	131	8	103	15	25	24

(a) Tank SY-101 has 2 gas sample flow sensors plus 2 vent flow sensors, and 2 ENRAFs.

(b) Each tank two sensors (high and low range).

(c) Each tank has two sensors (high and low range).

**APPENDIX B**  
**DOUBLE SHELL TANK WASTE TYPE**  
**AND SPACE ALLOCATION**

**TABLE B-1. DOUBLE-SHELL TANK WASTE TYPE AND SPACE ALLOCATION**  
**SEPTEMBER 1999**

DOUBLE-SHELL TANK INVENTORY BY WASTE TYPE		SPACE DESIGNATED FOR SPECIFIC USE	
Complexed Waste (AN-102, AN-106, AN-107, SY-101, SY-103, (AY-101, AP-103 (DC)))	3.90 Mgal	Spare Tanks (1 Aging & 1 Non-Aging Waste Tank)	2.28 Mgal
Concentrated Phosphate Waste (AP-102)	1.09 Mgal	Watch List Tank Space (AN-103, AN-104, AN-105, AW-101, SY-101, SY-103)	0.65 Mgal
Double-Shell Slurry and Slurry Feed (AN-103, AN-104, AN-105, AP-101, AW-101, AW-106)	4.40 Mgal	Restricted Tank Space (AN-102, AN-107, AP-102, AZ-101, AZ-102)	0.41 Mgal
Aging Waste (NCAW) at 5M Na Dilute in Aging Tanks (AZ-101, AZ-102)	1.23 Mgal 0.40 Mgal	Receiver/Operational Tank Space (AP-106, AP-108, AW-102, AW-106, SY-102)	3.36 Mgal
Dilute Waste (1) (AN-101, AP-103, AP-105, AP-104, AP-106, AP-107, AW-102, AW-103, AW-104, AW-105, AY-102, SY-102)	3.76 Mgal	Total Specific Use Space (09/30/99)	6.70 Mgal
NCRW, PFP and DST Settled Solids (All DST's)	4.22 Mgal	TOTAL DOUBLE-SHELL TANK SPACE	
Total Inventory=	18.99 Mgal	24 Tanks at 1140 Kgal	27.36 Mgal
		4 Tanks at 980 Kgal	3.92 Mgal
			31.28 Mgal
		Total Available Space	31.28 Mgal
		Double-Shell Tank Inventory	18.993 Mgal
		Space Designated for Specific Use	6.70 Mgal
		Remaining Unallocated Space	5.58 Mgal

WVPTOT

(1) Was reduced in volume by -0.0 Mgal this month (Evaporator WVR)  
 Note: Net change in total DST inventory since last month: +0.159 Mgal

**Table B-2. Double Shell Tank Waste Inventory for September 1999**

TANKS	INVENTORY	SOLIDS	TYPE	LEFT
AN-101=	160	33	DN	980
AN-102=	1060	89	CC	80
AN-103=	958	410	DSS	182
AN-104=	1053	449	DSSF	87
AN-105=	1126	489	DSSF	14
AN-106=	39	17	CC	1101
AN-107=	1044	247	CC	96
AP-101=	1115	0	DSSF	25
AP-102=	1092	0	CP	48
AP-103=	285	1	CC	855
AP-104=	24	0	DN	1116
AP-105=	765	89	DSSF	375
AP-106=	93	0	DN	1047
AP-107=	976	0	DN	164
AP-108=	369	0	DN	771
AW-101=	1126	306	DSSF	14
AW-102=	80	40	DN	1060
AW-103=	510	348	NCRW	630
AW-104=	1119	231	DN	21
AW-105=	429	280	NCRW	711
AW-106=	473	228	CC	667
AY-101=	154	108	DC	826
AY-102=	622	211	DN	358
AZ-101=	845	47	NCAW	135
AZ-102=	931	104	NCAW	49
SY-101=	1189	41	CC	-49
SY-102=	612	88	DN/PT	528
SY-103=	744	362	CC	396
<b>TOTAL=</b>	<b>18993</b>	<b>4218</b>		<b>12287</b>

NOTE: Solids Adjusted to Most Current Available Data

NOTE: All Volumes in Kilo-Gallons (Kgals)

(\*) Preliminary volume, actual volume will be calculated after settling

TOTAL DST SPACE AVAILABLE	
NON-AGING =	27360
AGING =	3920
<b>TOTAL=</b>	<b>31280</b>

DST INVENTORY CHANGE	
08/99 TOTAL	18834
09/99 TOTAL	18993
<b>INCREASE</b>	<b>159</b>

WATCH LIST SPACE	
AN-103=	182
AN-104=	87
AN-105=	14
AW-101=	14
SY-101=	-49
SY-103=	396
<b>TOTAL=</b>	<b>644</b>

RESTRICTED SPACE	
AN-102=	80
AN-107=	96
AP-102=	48
AZ-101=	135
AZ-102=	49
<b>TOTAL=</b>	<b>408</b>

WASTE RECEIVER SPACE	
AP-106 (200E/DN)=	1047
AP-108 (200E/DN)=	771
SY-102 (200W/DN)=	528
<b>TOTAL=</b>	<b>2346</b>

USABLE SPACE	
AN-101=	980
AN-106=	1101
AP-101=	25
AP-103=	855
AP-104=	1116
AP-105=	375
AP-107=	164
AW-102=	1060
AW-103=	630
AW-104=	21
AW-105=	711
AW-106=	667
AY-101=	826
AY-102=	358
<b>TOTAL=</b>	<b>8889</b>
EVAP. OPERATIONS	-1140
SPARE SPACE	-2280
<b>USABLE LEFT=</b>	<b>5469</b>

USABLE SPACE CHANGE	
08/99 TOTAL SPACE	5537
09/99 TOTAL SPACE	5469
<b>CHANGE=</b>	<b>-68</b>

WASTE RECEIVER SPACE CHANGE	
08/99 TOTAL SPACE	2428
09/99 TOTAL SPACE	2346
<b>CHANGE=</b>	<b>-82</b>

**Inventory Calculation by Waste Type:**

COMPLEXED WASTE	
AN-102=	971 (CC)
AN-106=	22 (CC)
AN-107=	797 (CC)
AP-103=	284 (CC)
AW-106=	245 (CC)
AY-101=	46 (DC)
SY-101=	1148 (CC)
SY-103=	382 (CC)
<b>TOTAL DC/CC=</b>	<b>3996</b>
<b>TOTAL SOLIDS=</b>	<b>1093</b>

NCRW SOLIDS (PD)	
AW-103=	348
AW-105=	280
<b>TOTAL=</b>	<b>628</b>

PFP SOLIDS (PT)	
SY-102=	88
<b>TOTAL=</b>	<b>88</b>

CONCENTRATED PHOSPHATE (CP)	
102-AP=	1092
<b>TOTAL=</b>	<b>1092</b>

DILUTE WASTE (DN)	
AN-101=	127
AP-104=	24
AP-106=	93
AP-107=	976
AP-108=	369
AW-102=	40
AW-103=	162
AW-104=	888
AW-105=	149
AY-102=	411
SY-102=	524
<b>TOTAL DN=</b>	<b>3763</b>
<b>TOTAL SOLIDS=</b>	<b>616</b>

NCAW (AGING WASTE) (@ 5M Na)	
AZ-101=	791
AZ-102=	434
<b>TOTAL @ 5M Na=</b>	<b>1225</b>
<b>TOTAL DN=</b>	<b>400</b>
<b>TOTAL SOLIDS=</b>	<b>161</b>

DSS/DSSF	
AN-103=	548
AN-104=	604
AN-105=	637
AP-101=	1115
AP-105=	676
AW-101=	820
<b>TOTAL DSS/DSSF=</b>	<b>4400</b>
<b>TOTAL SOLIDS=</b>	<b>1743</b>

GRAND TOTALS	
NCRW SOLIDS=	628
DST SOLIDS=	3351
PFP SOLIDS=	88
AGING SOLIDS=	151
CC=	3849
DC=	46
CP=	1092
NCAW=	1625
DSS/DSSF=	4400
DILUTE=	3763
<b>TOTAL=</b>	<b>18993</b>

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Table B-2. Double Shell Tank Waste Inventory for September 30, 1999

TOTAL AVAILABLE SPACE AS OF SEPTEMBER 30, 1999:			12287 KGALS	
WATCH LIST TANK SPACE:	TANK	WASTE TYPE	AVAILABLE SPACE	
Unusable DST Headspace - Due to Special Restrictions Placed on the Tanks, as Stated in the "Wyden Bill"	AN-103	DSS	182 KGALS	
	AN-104	DSSF	87 KGALS	
	AN-105	DSSF	14 KGALS	
	AW-101	DSSF	14 KGALS	
	SY-101	CC	-49 KGALS	
	SY-103	CC	396 KGALS	
	TOTAL=		644 KGALS	
AVAILABLE TANK SPACE		12287 KGALS		
MINUS WATCH LIST SPACE=		-644 KGALS		
TOTAL AVAILABLE SPACE AFTER WATCH LIST SPACE DEDUCTIONS=			11643 KGALS	
RESTRICTED TANK SPACE:	TANK	WASTE TYPE	AVAILABLE SPACE	
DST Headspace Available to Store Only Specific Waste Types	AN-102	CC	80 KGALS	
	AN-107	CC	96 KGALS	
	AP-102	CP	48 KGALS	
	AZ-101	AW	135 KGALS	
	AZ-102	AW	49 KGALS	
	TOTAL=		408 KGALS	
AVAILABLE SPACE AFTER WATCH LIST DEDUCTIONS		11643 KGALS		
MINUS RESTRICTED SPACE=		-408 KGALS		
TOTAL AVAILABLE SPACE AFTER RESTRICTED SPACE DEDUCTIONS=			11235 KGALS	
USABLE/WASTE RECEIVER TANK SPACE:	TANK	WASTE TYPE	AVAILABLE SPACE	
DST Headspace Available to Store Facility Generated and Evaporator Product Waste	AN-101	DN	980 KGALS	
	AN-106	CC	1101 KGALS	
	AP-101	DSSF	25 KGALS	
	AP-103	CC	855 KGALS	
	AP-104	DN	1116 KGALS	
	AP-105	DSSF	375 KGALS	
	FACILITY WASTE RECEIVER TANK	AP-106	DN	1047 KGALS
		AP-107	DN	164 KGALS
	FACILITY WASTE RECEIVER TANK	AP-108	DN	771 KGALS
	EVAPORATOR FEED TANK	AW-102	DN	1060 KGALS
		AW-103	NCRW	630 KGALS
		AW-104	DN	21 KGALS
		AW-105	NCRW	711 KGALS
	EVAPORATOR RECEIVER TANK	AW-106	CC	667 KGALS
		AY-101	DC	826 KGALS
	AY-102	DN	358 KGALS	
FACILITY WASTE RECEIVER TANK	SY-102	DN	528 KGALS	
TOTAL AVAILABLE USABLE TANK SPACE			11235 KGALS	
EVAPORATOR OPERATIONAL TANK SPACE:			-1140 KGALS	
SPARE TANK SPACE: (DOE Order 5820.2A)			-2280 KGALS	
TOTAL TANK SPACE AVAILABLE AFTER ALL DEDUCTIONS=			7815 KGALS	

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MILLIONS OF GALLONS

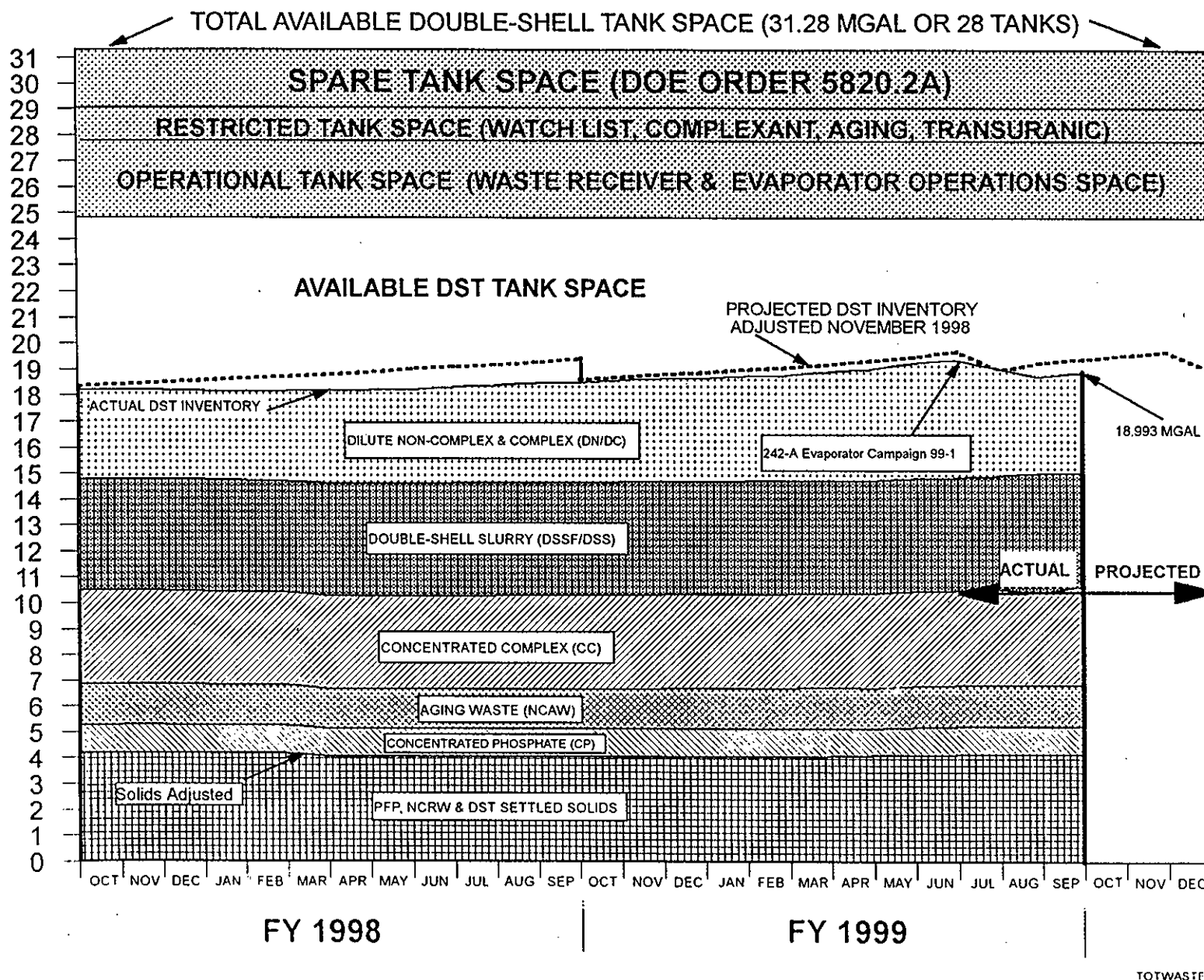


FIGURE B-1. TOTAL DOUBLE-SHELL TANK INVENTORY

**APPENDIX C**  
**TANK AND EQUIPMENT CODE**  
**AND STATUS DEFINITIONS**

## C. TANK AND EQUIPMENT CODE/STATUS DEFINITIONS

September 30, 1999

### 1. TANK STATUS CODES

#### WASTE TYPE (also see definitions, section 3)

AGING	Aging Waste (Neutralized Current Acid Waste [NCAW])
CC	Complexant Concentrate Waste
CP	Concentrated Phosphate Waste
DC	Dilute Complexed Waste
DN	Dilute Non-Complexed Waste
DSS	Double-Shell Slurry
DSSF	Double-Shell Slurry Feed
NCPLX	Non-Complexed Waste
PD/PN	Plutonium-Uranium Extraction (PUREX) Neutralized Cladding Removal Waste (NCRW), transuranic waste (TRU)
PT	Plutonium Finishing Plant (PFP) TRU Solids

#### TANK USE (DOUBLE-SHELL TANKS ONLY)

CWHT	Concentrated Waste Holding Tank
DRCVR	Dilute Receiver Tank
EVFD	Evaporate Feed Tank
SRCVR	Slurry Receiver Tank

### 2. SOLID AND LIQUID VOLUME DETERMINATION METHODS

F	Food Instrument Company (FIC) Automatic Surface Level Gauge
E	ENRAF Surface Level Gauge (being installed to replace FICs)
M	Manual Tape Surface Level Gauge
P	Photo Evaluation
S	Sludge Level Measurement Device

### 3. DEFINITIONS

#### WASTE TANKS - GENERAL

##### Waste Tank Safety Issue

A potentially unsafe condition in the handling of waste material in underground storage tanks that requires corrective action to reduce or eliminate the unsafe condition.

##### Watch List Tank

An underground storage tank containing waste that requires special safety precautions because it may have a serious potential for release of high level radioactive waste because of uncontrolled increases in temperature or pressure. Special restrictions have been placed on these tanks by "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the *National Defense Authorization Act for Fiscal Year 1991*, November 5, 1990, Public Law 101-510, (also known as the Wyden Amendment).

##### Characterization

Characterization is understanding the Hanford tank waste chemical, physical, and radiological properties to the extent necessary to insure safe storage and interim operation, and ultimate disposition of the waste.

## WASTE TYPES

### Aging Waste (AGING)

High level, first cycle solvent extraction waste from the PUREX plant (NCAW)

### Concentrated Complexant (CC)

Concentrated product from the evaporation of dilute complexed waste.

### Concentrated Phosphate Waste (CP)

Waste originating from the decontamination of the N Reactor in the 100 N Area. Concentration of this waste produces concentrated phosphate waste.

### Dilute Complexed Waste (DC)

Characterized by a high content of organic carbon including organic complexants: ethylenediaminetetraacetic acid (EDTA), citric acid, and hydroxyethyl-ethylenediaminetriacetic acid (HEDTA), being the major complexants used. Main sources of DC waste in the DST system are saltwell liquid inventory (from SSTs).

### Dilute Non-Complexed Waste (DN)

Low activity liquid waste originating from T and S Plants, the 300 and 400 Areas, PUREX facility (decladding supernatant and miscellaneous wastes), 100 N Area (sulfate waste), B Plant, saltwells, and PFP (supernate).

### Double-Shell Slurry (DSS)

Waste that exceeds the sodium aluminate saturation boundary in the evaporator without exceeding receiver tank composition limits. For reporting purposes, DSS is considered a solid.

### Double-Shell Slurry Feed (DSSF)

Waste concentrated just before reaching the sodium aluminate saturation boundary in the evaporator without exceeding receiver tank composition limits. This form is not as concentrated as DSS.

### Non-complexed (NCPLX)

General waste term applied to all Hanford Site (NCPLX) liquors not identified as complexed.

### PUREX Decladding (PD)

PUREX Neutralized Cladding Removal Waste (NCRW) is the solids portion of the PUREX plant neutralized cladding removal waste stream; received in Tank Farms as a slurry. NCRW solids are classified as transuranic (TRU) waste.

### PFP TRU Solids (PT)

TRU solids fraction from PFP Plant operations.

### Drainable Interstitial Liquid (DIL)

Interstitial liquid that is not held in place by capillary forces, and will therefore migrate or move by gravity. (See also Section 4)

### Supernate

The liquid above the solids or in large liquid pools covered by floating solids in waste storage tanks. (See also Section 4 below)

### Ferrocyanide

A compound of iron and cyanide commonly expressed as FeCN. The actual formula for the ferrocyanide anion is  $[\text{Fe}(\text{CN})_6]^{4-}$ .

## INTERIM STABILIZATION (Single-Shell Tanks only)

### Interim Stabilized (IS)

A tank which contains less than 50 Kgallons of drainable interstitial liquid and less than 5 Kgallons of supernatant liquid. If the tank was jet pumped to achieve interim stabilization, then the jet pump flow or saltwell screen inflow must also have been at or below 0.05 gpm before interim stabilization criteria is met.

### Jet Pump

The jet pump system includes 1) a jet assembly with foot valve mounted to the base of two pipes that extend from the top of the well to near the bottom of the well casing inside the saltwell screen, 2) a centrifugal pump to supply power fluid to the down-hole jet assembly, 3) flexible or rigid transfer jumpers, 4) a flush line, and 5) a flowmeter. The jumpers contain piping, valves, and pressure and limit switches.

The centrifugal pump and jet assembly are needed to pump the interstitial liquid from the saltwell screen into the pump pit, nominally a 40-foot elevation rise. The power fluid passes through a nozzle in the jet assembly and acts to convert fluid pressure head to velocity head, thereby reducing the pressure in the jet assembly chamber. The reduction in pressure allows the interstitial liquid to enter the jet assembly chamber and mix with the power fluid. Velocity head is converted to pressure head above the nozzle, lifting power fluid, and interstitial liquid to the pump pit. Pumping rates vary from 0.05 gallons to about 4 gpm.

### Saltwell Screen

The saltwell system is a 10-inch diameter saltwell casing consisting of a stainless steel saltwell screen welded to a Schedule 40 carbon steel pipe. The casing and screen are to be inserted into the 12-inch tank riser located in the pump pit. The stainless steel screen portion of the system will extend through the tank waste to near the bottom of the tank. The saltwell screen portion of the casing is an approximately 10-foot length of 300 Series, 10-inch diameter, stainless steel pipe with screen openings (slots) of 0.05 inches.

### Emergency Pumping Trailer

A 45-foot tractor-type trailer is equipped to provide storage space and service facilities for emergency pumping equipment: this consists of two dedicated jet pump jumpers and two jet pumps, piping and dip tubes for each, two submersible pumps and attached piping, and a skid-mounted Weight Factor Instrument Enclosure (WFIE) with an air compressor and electronic recording instruments. The skid also contains a power control station for the pumps, pump pit leak detection, and instrumentation. A rack for over 100 feet of overground double-contained piping is also in the trailer.

## INTRUSION PREVENTION (ISOLATION) Single-Shell Tanks only

### Partially Interim Isolated (PI)

The administrative designation reflecting the completion of the physical effort required for Interim Isolation except for isolation of risers and piping that is required for jet pumping or for other methods of stabilization.

### Interim Isolated (II)

The administrative designation reflecting the completion of the physical effort required to minimize the addition of liquids into an inactive storage tank, process vault, sump, catch tank, or diversion box. In June 1993, Interim Isolation was replaced by Intrusion Prevention.

### Intrusion Prevention (IP)

Intrusion Prevention is the administrative designation reflecting the completion of the physical effort required to minimize the addition of liquids into an inactive storage tank, process vault, sump, catch tank,

or diversion box. Under no circumstances are electrical or instrumentation devices disconnected or disabled during the intrusion prevention process (with the exception of the electrical pump).

#### Controlled, Clean, and Stable (CCS)

Controlled, Clean, and Stable reflects the completion of several objectives: "Controlled" - provide remote monitoring for required instrumentation and implement controls required in the TWRS Authorization Basis; "Clean" - remove surface soil contamination and downpost the Tank Farms to RBA/URMA/RA radiological control status, remove abandoned equipment, and place reusable equipment in compliant storage; and "Stable" - remove pumpable liquids from the SSTs and IMUSTs and isolate the tanks.

### TANK INTEGRITY

#### Sound

The integrity classification of a waste storage tank for which surveillance data indicate no loss of liquid attributed to a breach of integrity.

#### Assumed Leaker

The integrity classification of a waste storage tank for which surveillance data indicate a loss of liquid attributed to a breach of integrity.

#### Assumed Re-Leaker

A condition that exists after a tank has been declared as an "assumed leaker" and then the surveillance data indicates a new loss of liquid attributed to a breach of integrity.

### TANK INVESTIGATION

#### Intrusion

A term used to describe the infiltration of liquid into a waste tank.

### SURVEILLANCE INSTRUMENTATION

#### Drywells

Drywells are vertical boreholes with 6-inch (internal diameter) carbon steel casings positioned radially around SSTs. These wells range between 50 and 250 feet in depth, and are monitored between the range of 50 to 150 feet. The wells are sealed when not in use. They are called drywells because they do not penetrate to the water table and are therefore usually "dry." There are 759 drywells.

Monitoring is done by gamma radiation or neutron-moisture sensors to obtain scan profiles of radiation or moisture in the soil as a function of well depth, which could be indicative of tank leakage.

Two single-shell tanks (C-105 and C-106) are currently monitored monthly by gamma radiation sensors. The remaining drywells are monitored on request by gamma radiation sensors. Monitoring by neutron-moisture sensors is done only on request.

#### Laterals

Laterals are horizontal drywells positioned under single-shell waste storage tanks to detect radionuclides in the soil which could be indicative of tank leakage. These drywells can be monitored by radiation detection probes. Laterals are 4-inch inside diameter steel pipes located 8 to 10 feet below the tank's concrete base. There are three laterals per tank. Laterals are located only in A and SX farms. There are currently no functioning laterals and no plan to prepare them for use.

Surface Levels

The surface level measurements in all waste storage tanks are monitored by manual or automatic conductivity probes, and recorded and transmitted or entered into the Surveillance Analysis Computer System (SACS).

Automatic FIC

An automatic waste surface level measurement device is manufactured by the Food Instrument Company (FIC). The instrument consists of a conductivity electrode (plummet) connected to a calibrated steel tape, a steel tape reel housing and a controller that automatically raises and lowers the plummet to obtain a waste surface level reading. The controller can provide a digital display of the data and until February 1999, the majority of the FICs transmitted readings to the CASS. Since CASS retirement, all FIC gauges are read manually. FICs are being replaced by ENRAF detectors (see below).

ENRAF 854 ATG Level Detector

FICs and some manual tapes are in the process of being replaced by the ENRAF ATG 854 level detector. The ENRAF gauge, fabricated by ENRAF Incorporated, determines waste level by detecting variations in the weight of a displacer suspended in the tank waste. The displacer is connected to a wire wound onto a precision measuring drum. A level causes a change in the weight of the displacer which will be detected by the force transducer. Electronics within the gauge causes the servo motor to adjust the position of the displacer and compute the tank level based on the new position of the displacer drum. The gauge displays the level in decimal inches. The first few ENRAFs that received remote reading capability transmit liquid level data via analog output to the Tank Monitor and Control System (TMACS). The remaining ENRAFs and future installations will transmit digital level data to TMACS via an ENRAF Computer Interface Unit (CIU). The CIU allows fully remote communication with the gauge, minimizing tank farm entry.

Annulus

The annulus is the space between the inner and outer shells on DSTs only. Drain channels in the insulating and/or supporting concrete carry any leakage to the annulus space where conductivity probes are installed. The annulus conductivity probes and radiation detectors are the primary means of leak detection for all DSTs.

Liquid Observation Well (LOW)

In-tank liquid observation wells are used for monitoring the interstitial liquid level (ILL) in single-shell waste storage tanks. The wells are usually constructed of fiberglass or TEFZEL-reinforced epoxy-polyester resin (TEFZEL, a trademark of E. I. du Pont de Nemours & Company). There are a few LOWs constructed of steel. LOWs are sized to extend to within 1 inch of the bottom of the waste tank, are sealed at their bottom ends and have a nominal outside diameter of 3.5 inches. Two probes are used to monitor changes in the ILL; gamma and neutron, which can indicate intrusions or leakage by increases or decreases in the ILL. There are 65 LOWs (64 are in operation) installed in SSTs that contain or are capable of containing greater than 50 Kgallons of drainable interstitial liquid, and in two DSTs only. The LOWs installed in two DSTs, (SY-102 and AW-103 tanks), are used for special, rather than routine, surveillance purposes only.

Thermocouple (TC)

A thermocouple is a thermoelectric device used to measure temperature. More than one thermocouple on a device (probe) is called a thermocouple tree. In DSTs there may be one or more thermocouple trees in risers in the primary tank. In addition, in DSTs only, there are thermocouple elements installed in the insulating concrete, the lower primary tank knuckle, the secondary tank concrete foundation, and in the outer structural concrete.

These monitor temperature gradients within the concrete walls, bottom of the tank, and the domes. In SSTs, one or more thermocouples may be installed directly in a tank, although some SSTs do not have any trees installed. A single thermocouple (probe) may be installed in a riser, or lowered down an existing



riser or LOW. There are also four thermocouple laterals beneath Tank 105-A in which temperature readings are taken in 34 thermocouples.

#### In-tank Photographs and Videos

In-tank photographs and videos may be taken to aid in resolving in-tank measurement anomalies and determine tank integrity. Photographs and videos help determine sludge and liquid levels by visual examination.

#### TERMS/ACRONYMS

CCS            Controlled, Clean and Stable (tank farms)

II             Interim Isolated

IP             Intrusion Prevention Completed

IS             Interim Stabilized

MT/FIC/ENRAF    Manual Tape, Food Instrument Corporation, ENRAF Corporation (surface level measurement devices)

OSD           Operating Specifications Document

PI             Partial Interim Isolated

SAR           Safety Analysis Reports

SHMS          Standard Hydrogen Monitoring System

TMACS        Tank Monitor and Control System

TPA           Hanford Federal Facility Consent and Compliance Order, "Washington State Department of Ecology, U. S. Environmental Protection Agency, and U. S. Department of Energy," Fourth Amendment, 1994 (Tri-Party Agreement)

USQ           Unreviewed Safety Question

Wyden Amendment    "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the National Defense Authorization Act for Fiscal Year 1991, November 5, 1990, Public Law 101-510.

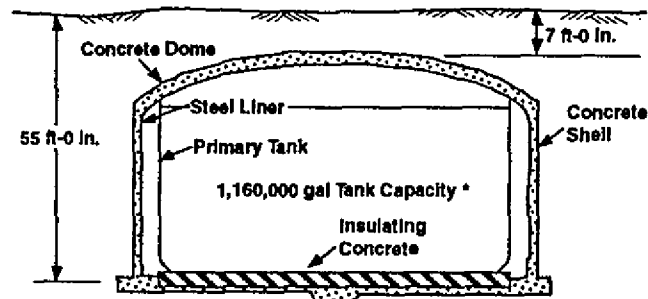
#### 4. INVENTORY AND STATUS BY TANK – COLUMN VOLUME CALCULATIONS AND DEFINITIONS FOR TABLE E-6 (SINGLE-SHELL TANKS)

COLUMN HEADING	COLUMN VOLUME CALCULATIONS (Underlined)/DEFINITIONS
Total Waste	<u>Solids volume plus Supernatant liquid.</u> Solids include sludge and saltcake (see definitions below).

COLUMN HEADING	COLUMN VOLUME CALCULATIONS (Underlined)/DEFINITIONS
Supernate (1)	<u>May be either measured or estimated.</u> Supernate is either the estimated or measured liquid floating on the surface of the waste or under a floating solids crust. In-tank photographs or videos are useful in estimating the liquid volumes; liquid floating on solids and core sample data are useful in estimating large liquid pools under a floating crust.
Drainable Interstitial Liquid (DIL) (1)	<u>This is initially calculated.</u> Drainable interstitial liquid is calculated based on the saltcake and sludge volumes, using calculated porosity values from past pumping or actual data for each tank. Interstitial liquid is liquid that fills the interstitial spaces of the solids waste. The sum of the interstitial liquid contained in saltcake and sludge minus an adjustment for capillary height is the initial volume of drainable interstitial liquid.
Pumped This Month	<u>Net total gallons of liquid pumped from the tank during the month.</u> If supernate is present, pump production is first subtracted from the supernatant volume. The remainder is then subtracted from the drainable interstitial liquid volume.
Total Pumped (1)	<u>Cumulative net total gallons of liquid pumped from 1979 to date.</u>
Drainable Liquid Remaining (DLR) (1)	<u>Supernate plus Drainable Interstitial Liquid.</u> The total Drainable Liquid Remaining is the sum of drainable interstitial liquid and supernate.
Pumpable Liquid Remaining (PLR) (1)	<u>Drainable Liquid Remaining minus unpumpable volume.</u> Not all drainable interstitial liquid is pumpable.
Sludge	<u>Solids formed during sodium hydroxide additions to waste.</u> Sludge usually was in the form of suspended solids when the waste was originally received in the tank from the waste generator. In-tank photographs or videos may be used to estimate the volume.
Saltcake	<u>Results from crystallization and precipitation after concentration of liquid waste, usually in an evaporator.</u> If saltcake is layered over sludge, it is only possible to measure total solids volume. In-tank photographs or videos may be used to estimate the saltcake volume.
Solids Volume Update	<u>Indicates the latest update of any change in the solids volume.</u>
Solids Update Source - See Footnote	<u>Indicates the source or basis of the latest solids volume update.</u>
Last In-tank Photo	<u>Date of last in-tank photographs taken.</u>
Last In-tank Video	<u>Date of last in-tank video taken.</u>
See Footnotes for These Changes	<u>Indicates any change made the previous month.</u> A footnote explanation for the change follows the Inventory and Status by Tank Appendix (Table E-6).

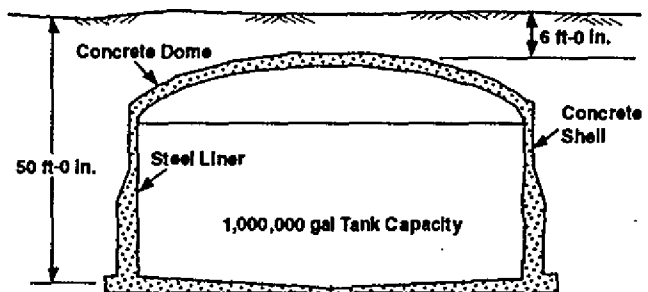
- (1) As pumping continues, supernate, DIL, DLR, PLR, and total gallons pumped are adjusted accordingly based on actual pump volumes.

**APPENDIX D**  
**TANK FARM CONFIGURATION, STATUS,**  
**AND FACILITIES CHARTS**



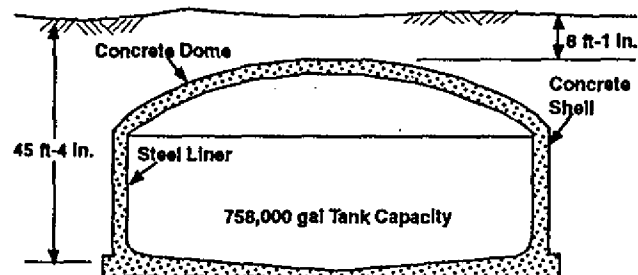
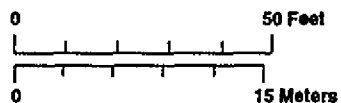
75-ft-Diameter Double-Shell Tank  
Tank Farms: AN, AP, AW, AY, AZ, SY

\* AY and AZ Have a Tank Capacity  
of 1,000,000 gal

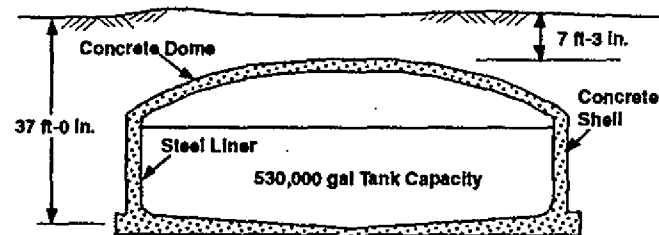


75-ft-Diameter Single-Shell Tank  
Tank Farms: A\*, AX\*, SX

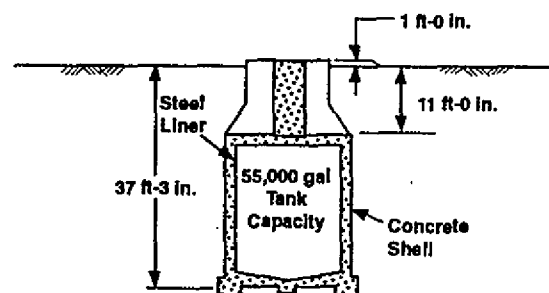
\* A and AX have flat bottoms



75-ft-Diameter Single-Shell Tank  
Tank Farms: BY, S, TX, TY



75-ft-Diameter Single-Shell Tank  
Tank Farms: B, BX, C, T, U



20-ft-Diameter Single-Shell Tank  
Tank Farms: B, C, T, U

29103062.1a

FIGURE D-1. HIGH-LEVEL WASTE TANK CONFIGURATION

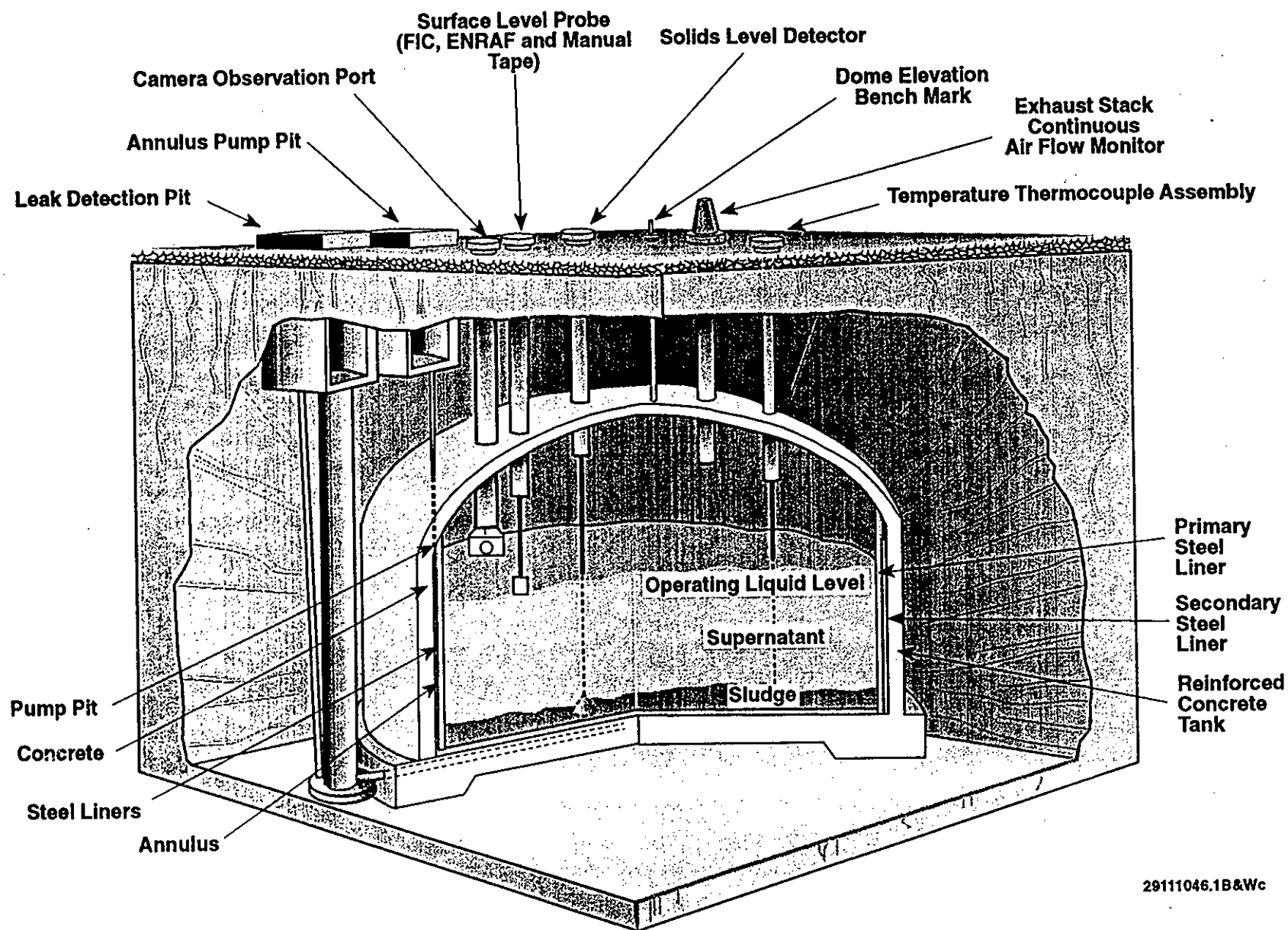


FIGURE D-2. DOUBLE-SHELL TANK INSTRUMENTATION CONFIGURATION

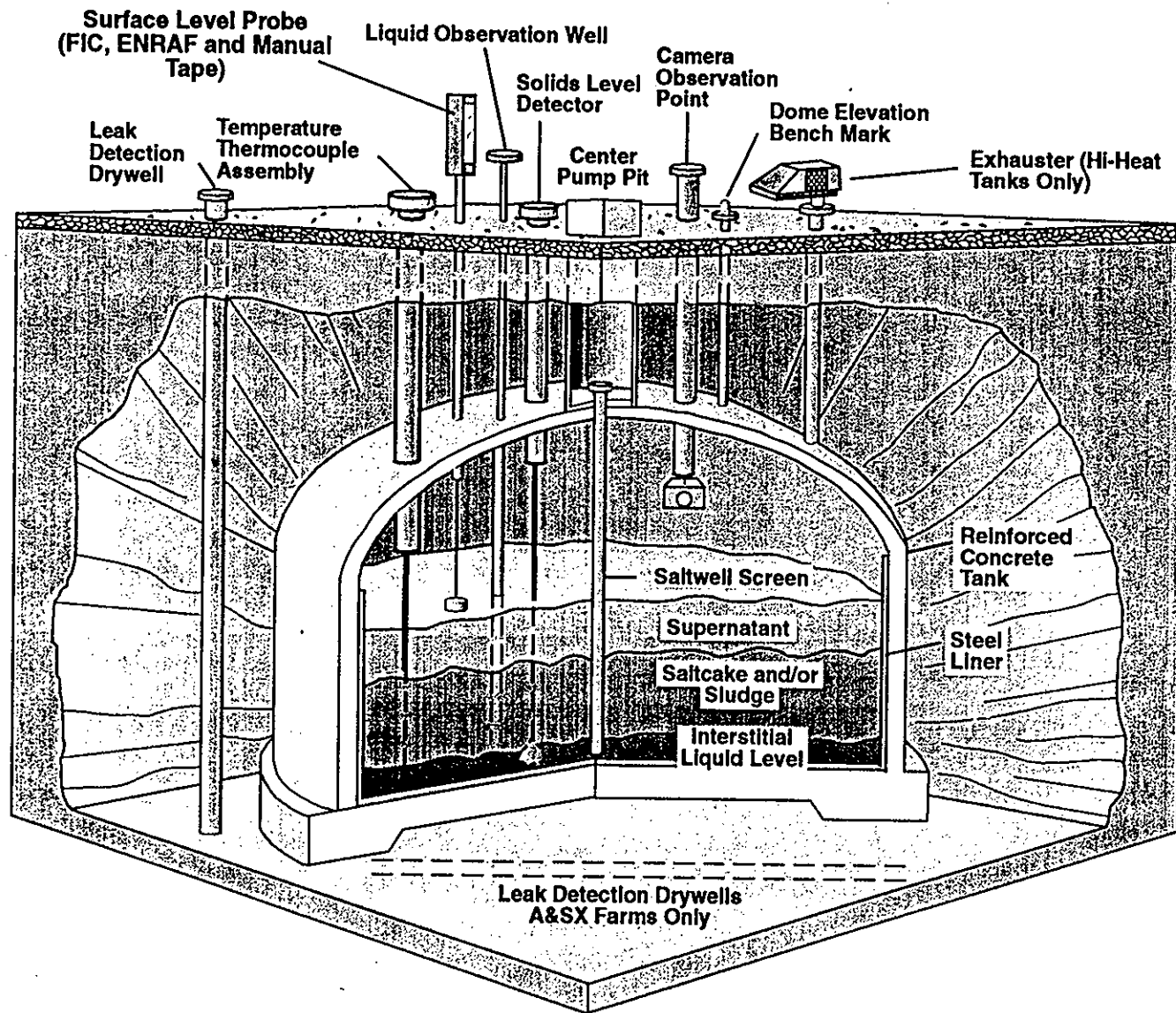


FIGURE D-3. SINGLE-SHELL TANK INSTRUMENTATION CONFIGURATION

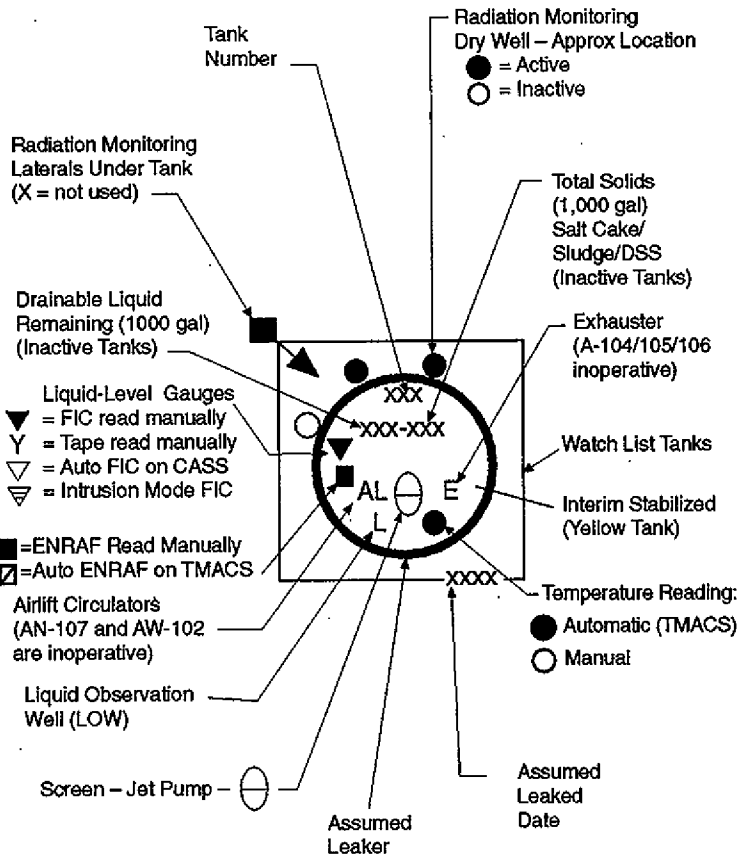
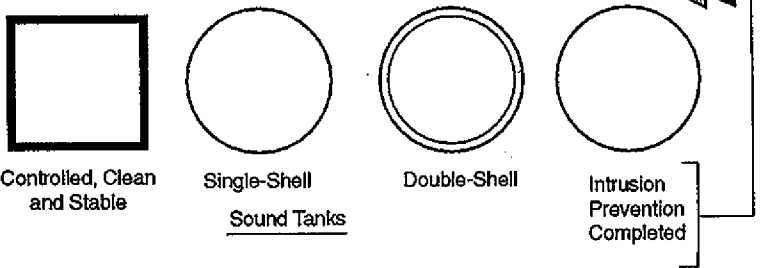
29111046.2B&Wb

# Hanford Tank Farm Facilities 200 East

**Note:**  
All single-shell tanks were removed from service (not allowed to receive waste) on or before November 21, 1980

Active Lines Only

- Concrete encased or pipe-in-pipe
- Direct Buried Pipe
- Cross-Site Transfer Lines (concrete encased or pipe-in-pipe)



Watch List Tanks	
	H2/Flammable gases
	Organics
106-C (cooling water added)	

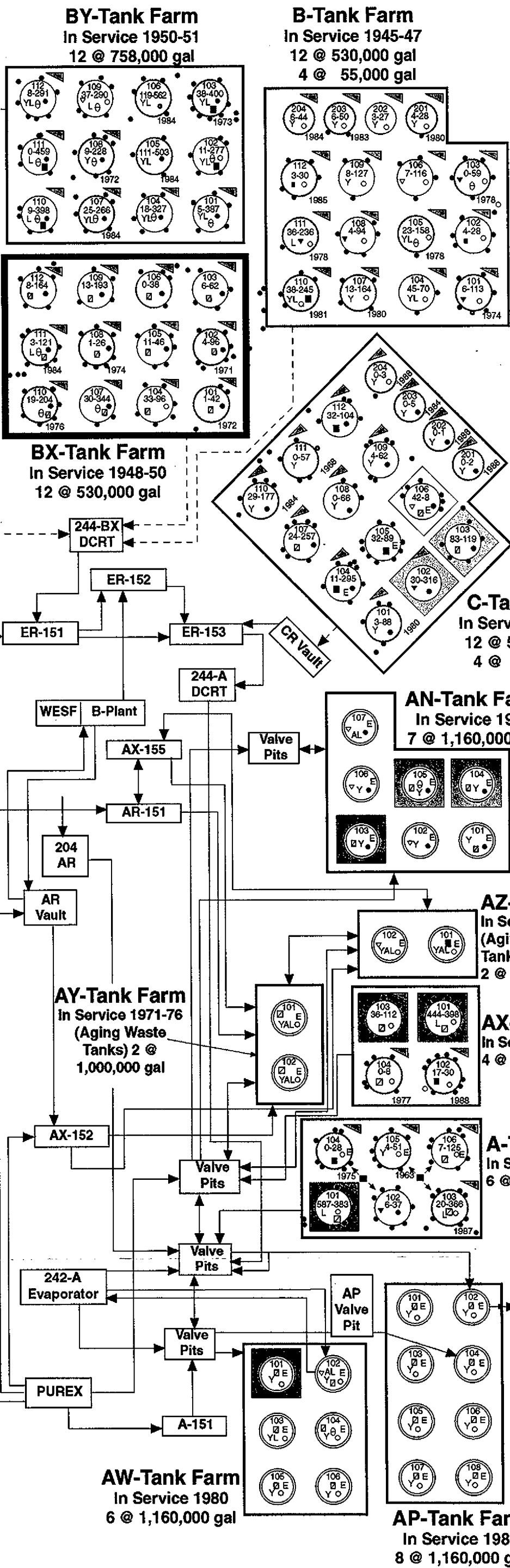


Figure D-4  
(Schematic)

# Hanford Tank Farm Facilities 200 West

**Note:**  
All single-shell tanks were removed from service (not allowed to receive waste) on or before November 21, 1980

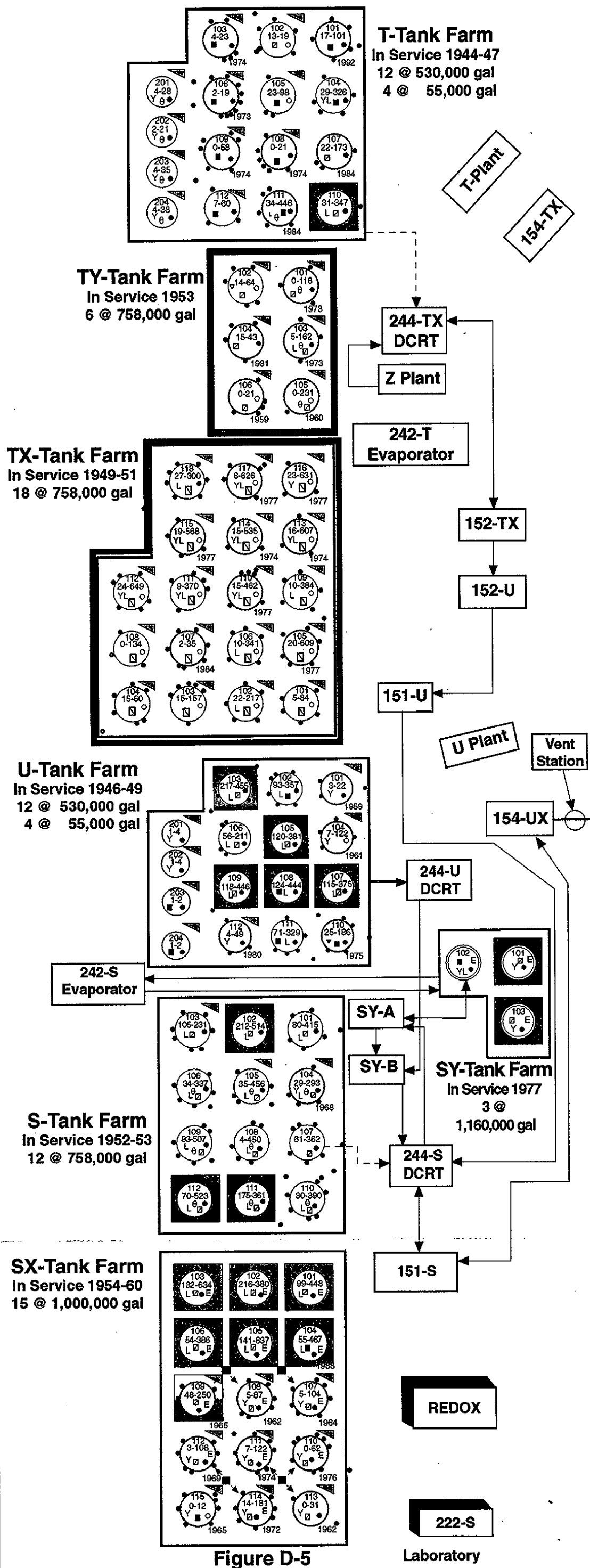
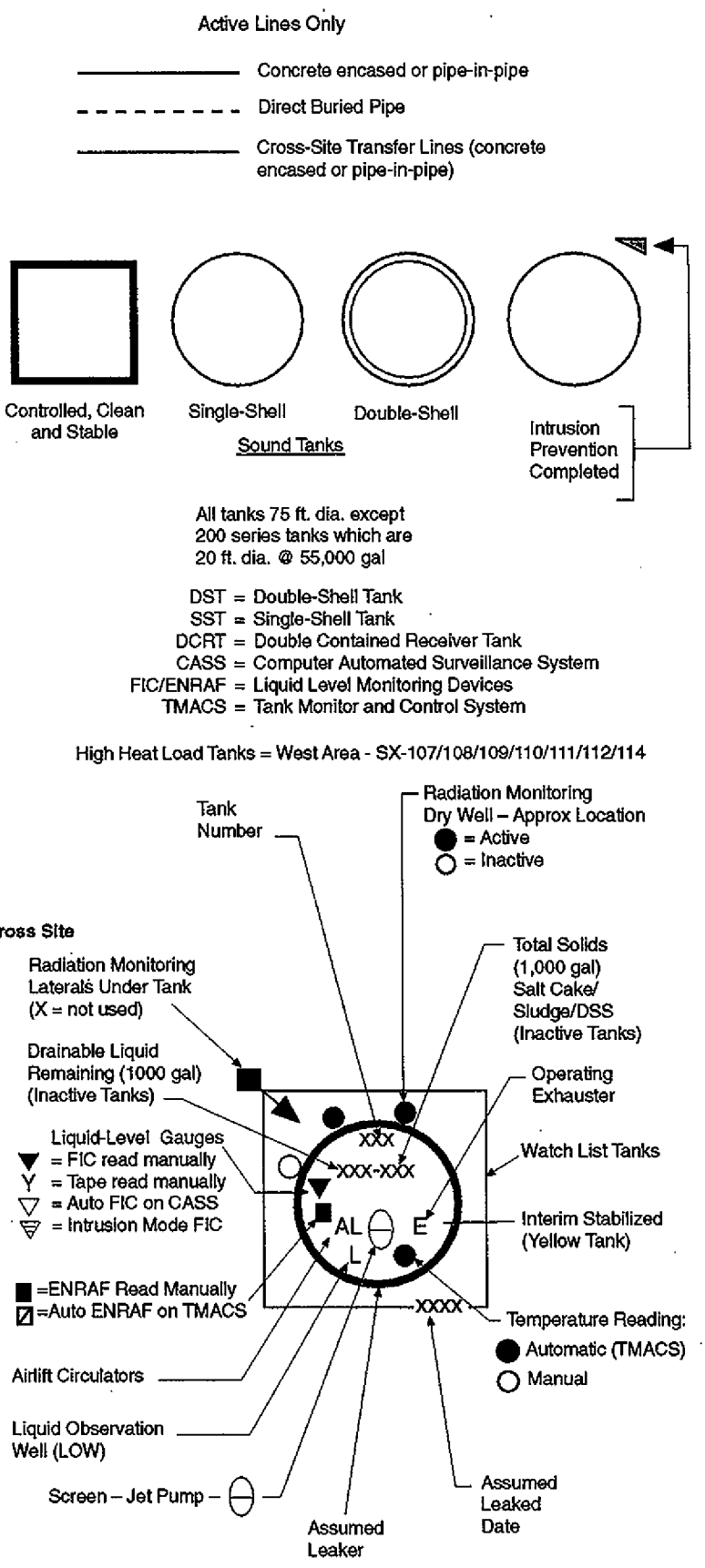


Figure D-5  
(Schematic)



**Watch List Tanks**

■ H2/Flammable gases (109-SX has potential only-other tanks vent through it)

Status as of September 30, 1999  
Updated Quarterly  
Issued by River Protection Project



**APPENDIX E**

**MONTHLY SUMMARY  
TANK USE SUMMARY  
PUMPING RECORD, LIQUID STATUS AND PUMPABLE  
LIQUID REMAINING IN TANK FARMS  
INVENTORY SUMMARY BY TANK FARM  
INVENTORY AND STATUS BY TANK**

TABLE E-1. MONTHLY SUMMARY

## TANK STATUS

September 30, 1999

	200 EAST AREA	200 WEST AREA	TOTAL
IN SERVICE	25	03	28 (1)
OUT OF SERVICE	66	83	149
SOUND	59	51	110
ASSUMED LEAKER	32	35	67
INTERIM STABILIZED	60	59	119
ISOLATED			
PARTIAL INTERIM	11	30	41
INTRUSION PREVENTION COMPLETE	55	53	108
CONTROLLED, CLEAN, AND STABLE	12	24	36

		WASTE VOLUMES (Kgallons)					
		200	200		SST	DST	
		EAST AREA	WEST AREA	TOTAL	TANKS	TANKS	TOTAL
<b>SUPERNATANT</b>							
AGING	Aging waste	1642	0	1642	0	1642	1642
CC	Complexant concentrate waste	2038	982	3020	0	3020	3020
CP	Concentrated phosphate waste	1092	0	1092	0	1092	1092
DC	Dilute complexed waste	474	0	474	1	473	474
DN	Dilute non-complexed waste	2985	0	2985	0	2985	2985
DN/PD	Dilute non-complex/PUREX TRU solid	321	0	321	0	321	321
DN/PT	Dilute non-complex/PFP TRU solids	0	541	541	0	541	541
NCPLX	Non-complexed waste	210	303	513	513	0	513
DSSF	Double-shell slurry feed	5256	167	5423	1070	4353	5423
<b>TOTAL SUPERNATANT</b>		<b>14018</b>	<b>1993</b>	<b>16011</b>	<b>1584</b>	<b>14427</b>	<b>16011</b>
<b>SOLIDS</b>							
	Double-shell slurry	457	0	457	0	457	457
	Sludge	6438	5969	12407	11507	900	12407
	Saltcake	7489	16430	23919	20710	3209	23919
<b>TOTAL SOLIDS</b>		<b>14384</b>	<b>22399</b>	<b>36783</b>	<b>32217</b>	<b>4566</b>	<b>36783</b>
<b>TOTAL WASTE</b>		<b>28402</b>	<b>24392</b>	<b>52794</b>	<b>33801</b>	<b>18993</b>	<b>52794</b>
<b>AVAILABLE SPACE IN TANKS</b>		<b>11412</b>	<b>924</b>	<b>12336</b>	<b>0</b>	<b>12336</b>	<b>12336</b>
<b>DRAINABLE INTERSTITIAL</b>		<b>1971</b>	<b>3071</b>	<b>5042</b>	<b>3738</b>	<b>1304</b>	<b>5042</b>
<b>DRAINABLE LIQUID REMAINING (2)</b>		<b>2139</b>	<b>3139</b>	<b>5278</b>	<b>7298</b>	<b>(2)</b>	<b>7298</b>

(1) Includes six double-shell tanks on Hydrogen Watch List not currently allowed to receive waste, AN-103, AN-104, AN-105, AW-101, SY-101, and SY-103.

(2) Drainable Liquid Remaining for single-shell tanks only; not applicable for double-shell tanks

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TABLE E-2. TANK USE SUMMARY

September 30, 1999

TANK FARMS	TANKS AVAILABLE TO RECEIVE WASTE TRANSFERS	SOUND	ASSUMED LEAKER	ISOLATED TANKS			
				PARTIAL INTERIM	INTRUSION PREVENTION COMPLETED	CONTROLLED CLEAN, AND STABLE	INTERIM TABILIZED TANKS
EAST							
A	0	3	3	2	4	0	5
AN	7 (1)	7	0	0	0		0
AP	8	8	0	0	0		0
AW	6 (1)	6	0	0	0		0
AX	0	2	2	1	3		3
AY	2	2	0	0	0		0
AZ	2	2	0	0	0		0
B	0	6	10	0	16		16
BX	0	7	5	0	12	12	12
BY	0	7	5	5	7		10
C	0	9	7	3	13		14
Total	25	59	32	11	55	12	60
WEST							
S	0	11	1	10	2		4
SX	0	5	10	6	9		9
SY	3 (1)	3	0	0	0		0
T	0	9	7	5	11		14
TX	0	10	8	0	18	18	18
TY	0	1	5	0	6	6	6
U	0	12	4	9	7		8
Total	3	51	35	30	53	24	59
TOTAL	28	110	67	41	108	36	119

(1) Six Double-Shell Tanks on the Hydrogen Tank Watch List are not currently receiving waste transfers (AN-103, 104, 105, AW-101, SY-101 and 103).

**TABLE E-3. PUMPING RECORD, LIQUID STATUS AND PUMPABLE  
LIQUID REMAINING IN TANK FARMS**

September 30, 1999

<b>TANK FARMS</b>	<b>Waste Volumes (Kgallons)</b>						
	<b><u>PUMPED THIS MONTH</u></b>	<b><u>PUMPED FY TO DATE</u></b>	<b><u>CUMULATIVE TOTAL PUMPED 1979 TO DATE</u></b>	<b><u>SUPERNATANT LIQUID</u></b>	<b><u>DRAINABLE INTERSTITIAL REMAINING</u></b>	<b><u>DRAINABLE LIQUID REMAINING</u></b>	<b><u>PUMPABLE SST LIQUID REMAINING</u></b>
<b>EAST</b>							
A	0.0	0.0	150.5	517	107	624	587
AN	N/A	N/A	N/A	3659	513	N/A	N/A
AP	N/A	N/A	N/A	4630	25	N/A	N/A
AW	N/A	N/A	N/A	2321	361	N/A	N/A
AX	0.0	0.0	13.0	386	108	497	450
AY	N/A	N/A	N/A	652	4	N/A	N/A
AZ	N/A	N/A	N/A	1642	3	N/A	N/A
B	0.0	0.0	0.0	15	191	206	107
BX	N/A	0.0	200.2	24	107	132	N/A
BY	0.0	0.0	1567.8	0	390	390	282
C	0.0	0.0	103.0	172	162	290	207
<b>Total</b>	<b>0.0</b>	<b>0.0</b>	<b>2034.5</b>	<b>14018</b>	<b>1971</b>	<b>2139</b>	<b>1633</b>
<b>WEST</b>							
S	6.3	139.4	1006.7	138	780	918	839
SX	14.6	237.4	364.3	134	645	779	701
SY	N/A	349.7	N/A	1523	398	N/A	N/A
T	0.0	36.2	245.7	28	168	196	126
TX	N/A	0.0	1205.7	9	250	N/A	N/A
TY	N/A	0.0	29.9	3	31	N/A	N/A
U	12.0	12.0	12.0	158	799	957	935
<b>Total</b>	<b>32.9</b>	<b>774.7</b>	<b>2864.3</b>	<b>1993</b>	<b>3071</b>	<b>2850</b>	<b>2601</b>
<b>TOTAL</b>	<b>32.9</b>	<b>774.7</b>	<b>4898.8</b>	<b>16011</b>	<b>5042</b>	<b>4989</b>	<b>4234</b>

N/A = Not applicable for Double-Shell Tank Farms, and Single-Shell Tank Farms which have been declared Controlled, Clean and Stable (BX, TX, TY).

TABLE E-4. INVENTORY SUMMARY BY TANK FARM

September 30, 1999

SUPERNATANT LIQUID VOLUMES (Kgallons)													SOLIDS VOLUME			
TANK	TOTAL	AVAIL											SALT			
FARM	WASTE	SPACE	AGING	CC	CP	DC	DN	DN/PD	DN/PT	DSSE	NCPLX	TOTAL	DSS	SLUDGE	CAKE	TOTAL
EAST																
A	1507	0	0	0	0	0	0	0	0	517	0	517	0	588	402	990
AN	5440	2540	0	1790	0	0	127	0	0	1742	0	3659	457	0	1324	1781
AP	4719	4401	0	0	1092	369	1378	0	0	1791	0	4630	0	0	89	89
AW	3737	3103	0	248	0	44	888	321	0	820	0	2321	0	571	845	1416
AX	834	0	0	0	0	0	0	0	0	386	0	386	0	26	422	448
AY	776	1184	0	0	0	60	592	0	0	0	0	652	0	124	0	124
AZ	1776	184	1642	0	0	0	0	0	0	0	0	1642	0	134	0	134
B	1909	0	0	0	0	0	0	0	0	0	15	15	0	1327	567	1894
BX	1496	0	0	0	0	0	0	0	0	0	24	24	0	1265	207	1472
BY	4387	0	0	0	0	0	0	0	0	0	0	0	0	864	3523	4387
C	1821	0	0	0	0	1	0	0	0	0	171	172	0	1649	0	1649
Total	28402	11412	1642	2038	1092	474	2985	321	0	5258	210	14018	457	8548	7379	14384
WEST																
S	4977	0	0	0	0	0	0	0	0	138	0	138	0	1185	3654	4839
SX	4043	0	0	0	0	0	0	0	0	0	134	134	0	1064	2845	3909
SY	2545	924	0	982	0	0	0	0	541	0	0	1523	0	71	951	1022
T	1864	0	0	0	0	0	0	0	0	28	0	28	0	1691	145	1836
TX	6778	0	0	0	0	0	0	0	0	9	0	9	0	893	5876	6769
TY	842	0	0	0	0	0	0	0	0	3	0	3	0	529	110	639
U	3543	0	0	0	0	0	0	0	0	125	33	158	0	536	2849	3385
Total	24392	924	0	982	0	0	0	0	541	303	167	1993	0	5968	18430	22398
TOTAL	52794	12336	1642	3020	1092	474	2985	321	541	5559	377	16011	457	12517	23809	36783

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TABLE E-5. INVENTORY AND STATUS BY TANK - DOUBLE SHELL TANKS

September 30, 1999

TANK STATUS							LIQUID VOLUME		SOLIDS VOLUME			VOLUME DETERMINATION			PHOTOS/VIDEOS		SEE FOOTNOTE FOR THESE CHANGES
TANK	WAST MATL	TANK INTEGRITY	TANK USE	EQUIVA- LENT WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL. SPACE (Kgal)	SUPER- NATANT LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	DSS (Kgal)	SLUDGE	SALT CAKE	LIQUID VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	
AN TANK FARM STATUS																	
AN-101	DN	SOUND	DRCVR	58.2	160	980	127	0	0	0	33	FM	S	06/30/99	0/ 0/ 0		
AN-102	CC	SOUND	CWHT	385.5	1060	80	971	25	0	0	89	FM	S	06/30/99	0/ 0/ 0		
AN-103	DSS	SOUND	CWHT	348.4	958	182	501	0	457	0	0	FM	S	06/30/99	10/29/87		
AN-104	DSSF	SOUND	CWHT	382.9	1053	87	604	187	0	0	449	FM	S	06/30/99	08/19/88		
AN-105	DSSF	SOUND	CWHT	409.5	1126	14	637	205	0	0	489	FM	S	06/30/99	01/26/88		
AN-106	CC	SOUND	CWHT	14.2	39	1101	22	0	0	0	17	FM	S	06/30/99	0/ 0/ 0		
AN-107	CC	SOUND	CWHT	379.6	1044	96	797	96	0	0	247	FM	S	06/30/99	09/01/88		
7 DOUBLE-SHELL TANKS				TOTALS	5440	2540	3659	513	457	0	1324						
AP TANK FARM STATUS																	
AP-101	DSSF	SOUND	DRCVR	405.5	1115	25	1115	0	0	0	0	FM	S	05/01/89	0/ 0/ 0	09/27/95	
AP-102	CP	SOUND	GRTFD	397.1	1092	48	1092	0	0	0	0	FM	S	07/11/89	0/ 0/ 0		
AP-103	DN	SOUND	DRCVR	103.6	285	855	285	0	0	0	0	FM	S	05/31/96	0/ 0/ 0		
AP-104	DN	SOUND	GRTFD	8.7	24	1116	24	0	0	0	0	FM	S	10/13/88	0/ 0/ 0		
AP-105	DSSF	SOUND	CWHT	278.2	765	375	676	25	0	0	89	FM	S	06/30/99	0/ 0/ 0		
AP-106	DN	SOUND	DRCVR	33.8	93	1047	93	0	0	0	0	FM	S	10/13/88	0/ 0/ 0		
AP-107	DN	SOUND	DRCVR	354.9	976	164	976	0	0	0	0	FM	S	10/13/88	0/ 0/ 0		
AP-108	DC	SOUND	DRCVR	134.2	369	771	369	0	0	0	0	FM	S	10/13/88	0/ 0/ 0		
8 DOUBLE-SHELL TANKS				TOTALS	4719	4401	4630	25	0	0	89						
AW TANK FARM STATUS																	
AW-101	DSSF	SOUND	CWHT	409.5	1126	14	820	123	0	0	306	FM	S	06/30/99	03/17/88		
AW-102	DC	SOUND	EVFD	29.1	80	1060	44	1	0	0	36	FM	S	06/30/99	02/02/83		
AW-103	DN/PD	SOUND	DRCVR	185.5	510	630	147	38	0	316	47	FM	S	06/30/99	0/ 0/ 0		
AW-104	DN	SOUND	DRCVR	406.9	1119	21	888	89	0	0	231	FM	S	06/30/99	02/02/83		
AW-105	DN/PD	SOUND	DRCVR	156.0	429	711	174	24	0	255	0	FM	S	06/30/99	0/ 0/ 0		
AW-106	CC	SOUND	SRCVR	172.0	473	667	248	86	0	0	225	FM	S	06/30/99	02/02/83		
6 DOUBLE-SHELL TANKS				TOTALS	3737	3103	2321	361	0	571	845						

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TABLE E-5. INVENTORY AND STATUS BY TANK - DOUBLE SHELL TANKS

September 30, 1999

TANK STATUS							LIQUID VOLUME		SOLIDS VOLUME			VOLUME DETERMINATION			PHOTOS/VIDEOS		SEE FOOTNOTE FOR THESE CHANGES
TANK	WAST MATL	TANK INTEGRITY	TANK USE	EQUIVA- LENT	TOTAL	AVAIL.	LIQUID (Kgal)	DRAIN- SUPER- NATANT INTER- STIT. (Kgal)	DSS (Kgal)	SLUDGE	SALT CAKE	LIQUID VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	
				WASTE INCHES	WASTE (Kgal)	SPACE (Kgal)											
<u>AY TANK FARM STATUS</u>																	
AY-101	DC	SOUND	DRCVR	56.0	154	826	60	4	0	94	0	FM	S	06/30/99	12/28/82		
AY-102	DN	SOUND	DRCVR	226.2	622	358	592	0	0	30	0	FM	S	06/30/99	04/28/81		(b)
2 DOUBLE-SHELL TANKS				TOTALS	776	1184	652	4	0	124	0						
<u>AZ TANK FARM STATUS</u>																	
AZ-101	AGING	SOUND	CWHT	307.3	845	135	799	0	0	46	0	FM	S	06/30/98	08/18/83		
AZ-102	AGING	SOUND	DRCVR	338.5	931	49	843	3	0	88	0	FM	S	06/30/99	10/24/84		
2 DOUBLE-SHELL TANKS				TOTALS	1776	184	1642	3	0	134	0						
<u>SY TANK FARM STATUS</u>																	
SY-101	CC	SOUND	CWHT	432.4	1189	0	604	248	0	0	585	FM	S	06/30/99	04/12/89		(a)
SY-102	DN/PT	SOUND	DRCVR	222.5	612	528	541	0	0	71	0	FM	S	06/30/99	04/29/81		
SY-103	CC	SOUND	CWHT	270.5	744	396	378	150	0	0	366	FM	S	06/30/99	10/01/85		
3 DOUBLE-SHELL TANKS				TOTALS	2545	924	1523	398	0	71	951						
GRAND TOTAL					18993	12336	14427	1304	457	900	3209						

Note: +/- 1 Kgal differences are the result of computer rounding

Available Space Calculations Used in this Document

Tank Farms	
AN, AP, AW, SY	1,140 Kgal
AY, AZ (Aging Waste)	980 Kgal

NOTE: Tanks AN-102, AN-107, AY-101 and AP-104 are still outside the corrosion control specifications limits for hydroxide. Note that the supernate in AY-102 is within the corrosion specifications, however, the pre-sludging C-106 solids in AY-102 may still be outside the corrosion control compliance range for hydroxide. An alternate strategy of corrosion control (i.e., monitor tank waste using corrosion probes) is being proposed but has not been fully evaluated. Waste mitigation may be performed either by chemical adjustment or waste transfer/co-mingling of waste with high hydroxide.

(a) Tank SY-101 - Total Waste exceeds the "most conservative" Available Space calculations used for these tanks in this document.

(b) Tank AY-102 - Sludge volume changes in this tank each month are due to C-106 sludging and are preliminary; actual volume to be calculated after settling.

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TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

September 30, 1999

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION			PHOTOS/VIDEOS		SEE FOOTNOTES FOR THESE CHANGES	
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATE LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO		
<b>A TANK FARM STATUS</b>																			
A-101	DSSF	SOUND	/PI	891	508	79	0.0	0.0	587	587	3	380	P	F	09/30/99	08/21/85		(j)	
A-102	DSSF	SOUND	IS/PI	41	4	2	0.0	39.5	6	0	15	22	P	FP	07/27/89	07/20/89			
A-103	DSSF	ASMD LKR	IS/IP	371	5	15	0.0	111.0	20	0	366	0	-	FP	06/03/88	12/28/88			
A-104	NCPLX	ASMD LKR	IS/IP	28	0	0	0.0	0.0	0	0	28	0	M	PS	01/27/78	06/25/86			
A-105	NCPLX	ASMD LKR	IS/IP	51	0	4	0.0	0.0	4	0	51	0	P	MP	06/30/99	08/20/86			
A-106	CP	SOUND	IS/IP	125	0	7	0.0	0.0	7	0	125	0	P	M	09/07/82	08/19/86			
6 SINGLE-SHELL TANKS TOTALS				1507	517	107	0.0	150.5	624	587	588	402							
<b>AX TANK FARM STATUS</b>																			
AX-101	DSSF	SOUND	/PI	684	386	58	0.0	0.0	444	444	3	295	P	F	09/30/99	08/18/87		(j)	
AX-102	CC	ASMD LKR	IS/IP	30	0	14	0.0	13.0	17	3	7	23	F	S	06/30/99	06/05/89			
AX-103	CC	SOUND	IS/IP	112	0	36	0.0	0.0	36	3	8	104	F	S	06/30/99	08/13/87			
AX-104	NCPLX	ASMD LKR	IS/IP	8	0	0	0.0	0.0	0	0	8	0	P	M	06/30/99	08/18/87			
4 SINGLE-SHELL TANKS TOTALS:				834	386	108	0.0	13.0	497	450	26	422							
<b>B TANK FARM STATUS</b>																			
B-101	NCPLX	ASMD LKR	IS/IP	113	0	6	0.0	0.0	6	0	0	113	P	F	06/30/99	05/19/83			
B-102	NCPLX	SOUND	IS/IP	32	4	0	0.0	0.0	4	0	0	28	P	F	06/30/99	08/22/85			
B-103	NCPLX	ASMD LKR	IS/IP	59	0	0	0.0	0.0	0	0	0	59	F	F	06/30/99	10/13/88			
B-104	NCPLX	SOUND	IS/IP	371	1	44	0.0	0.0	45	38	309	61	M	M	06/30/99	10/13/88			
B-105	NCPLX	ASMD LKR	IS/IP	158	0	23	0.0	0.0	23	0	28	130	P	MP	06/30/99	05/19/88			
B-106	NCPLX	SOUND	IS/IP	117	1	6	0.0	0.0	7	0	116	0	F	F	03/31/85	02/28/85			
B-107	NCPLX	ASMD LKR	IS/IP	165	1	12	0.0	0.0	13	7	93	71	M	M	06/30/99	02/28/85			
B-108	NCPLX	SOUND	IS/IP	94	0	4	0.0	0.0	4	0	53	41	F	F	06/30/99	05/10/85			
B-109	NCPLX	SOUND	IS/IP	127	0	8	0.0	0.0	8	0	63	64	M	M	06/30/99	04/02/85			
B-110	NCPLX	ASMD LKR	IS/IP	246	1	37	0.0	0.0	38	32	245	0	MP	MP	02/28/85	03/17/88			
B-111	NCPLX	ASMD LKR	IS/IP	237	1	35	0.0	0.0	36	30	236	0	F	F	06/28/85	06/26/85			
B-112	NCPLX	ASMD LKR	IS/IP	33	3	0	0.0	0.0	3	0	30	0	F	F	05/31/85	05/29/85			
B-201	NCPLX	ASMD LKR	IS/IP	29	1	3	0.0	0.0	4	0	28	0	M	M	04/28/82	11/12/86	06/23/95		
B-202	NCPLX	SOUND	IS/IP	27	0	3	0.0	0.0	3	0	27	0	P	M	05/31/85	05/29/85	06/15/95		
B-203	NCPLX	ASMD LKR	IS/IP	51	1	5	0.0	0.0	6	0	50	0	PM	PM	05/31/84	11/13/86			
B-204	NCPLX	ASMD LKR	IS/IP	50	1	5	0.0	0.0	6	0	49	0	P	M	05/31/84	10/22/87			
16 SINGLE-SHELL TANKS TOTALS				1909	15	191	0.0	0.0	206	107	1327	567							

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TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

September 30, 1999

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS																		
TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION			PHOTOS/VIDEOS		SEE FOOTNOTES FOR THESE CHANGES
WASTE	TANK	STABIL/	TOTAL	SUPER- NATE (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO		
TANK	MAT'L.	INTEGRITY	WASTE (Kgal)		LIQUID PUMPED (Kgal)	LIQUID REMAIN (Kgal)												
BX TANK FARM STATUS																		
BX-101	NCPLX	ASMD LKR	IS/IP/CCS	43	1	0	0.0	0.0	1	0	42	0	P	M	04/28/82	11/24/88	11/10/94	
BX-102	NCPLX	ASMD LKR	IS/IP/CCS	96	0	4	0.0	0.0	4	0	96	0	P	M	04/28/82	09/18/85		
BX-103	NCPLX	SOUND	IS/IP/CCS	71	9	0	0.0	0.0	9	0	62	0	P	F	11/29/83	10/31/86	10/27/94	
BX-104	NCPLX	SOUND	IS/IP/CCS	99	3	30	0.0	17.4	33	27	96	0	F	F	09/22/89	09/21/89		
BX-105	NCPLX	SOUND	IS/IP/CCS	51	5	6	0.0	15.0	11	4	46	0	F	S	06/30/99	10/23/86		
BX-106	NCPLX	SOUND	IS/IP/CCS	38	0	0	0.0	14.0	0	0	38	0	MP	PS	08/01/95	05/19/88	07/17/95	
BX-107	NCPLX	SOUND	IS/IP/CCS	345	1	29	0.0	23.1	30	23	344	0	MP	P	09/18/90	09/11/90		
BX-108	NCPLX	ASMD LKR	IS/IP/CCS	26	0	1	0.0	0.0	1	0	26	0	M	PS	07/31/79	05/05/84		
BX-109	NCPLX	SOUND	IS/IP/CCS	193	0	13	0.0	8.2	13	8	193	0	FP	P	09/17/90	09/11/90		
BX-110	NCPLX	ASMD LKR	IS/IP/CCS	207	2	16	0.0	1.5	10	10	100	77	MP	M	06/30/99	07/15/94	10/13/94	
BX-111	NCPLX	ASMD LKR	IS/IP/CCS	162	1	1	0.0	116.9	3	1	25	136	M	M	06/30/99	05/19/94	02/28/95	
BX-112	NCPLX	SOUND	IS/IP/CCS	165	1	7	0.0	4.1	8	2	164	0	FP	P	09/17/90	09/11/90		
12 SINGLE-SHELL TANKS TOTALS:				1496	24	107	0.0	200.2	132	78	1265	207						
BY TANK FARM STATUS																		
BY-101	NCPLX	SOUND	IS/IP	387	0	5	0.0	35.8	5	0	109	278	P	M	05/30/84	09/19/89		
BY-102	NCPLX	SOUND	IS/PI	277	0	11	0.0	159.0	11	0	0	277	MP	M	05/01/95	09/11/87	04/11/95	
BY-103	NCPLX	ASMD LKR	IS/PI	400	0	38	0.0	95.9	38	32	9	391	MP	M	06/30/99	09/07/89	02/24/97	
BY-104	NCPLX	SOUND	IS/IP	326	0	18	0.0	329.5	18	0	150	176	P	M	06/30/99	04/27/83		
BY-105	NCPLX	ASMD LKR	/PI	503	0	111	0.0	0.0	111	111	48	455	P	MP	08/31/99	07/01/86	(e)(j)	
BY-106	NCPLX	ASMD LKR	/PI	562	0	119	0.0	63.7	119	119	84	478	P	MP	12/31/98	11/04/82	(j)	
BY-107	NCPLX	ASMD LKR	IS/IP	266	0	25	0.0	56.4	25	0	40	226	P	MP	06/30/99	10/15/86		
BY-108	NCPLX	ASMD LKR	IS/IP	228	0	9	0.0	27.5	9	0	154	74	MP	M	04/28/82	10/15/86		
BY-109	NCPLX	SOUND	IS/PI	290	0	37	0.0	157.1	37	20	57	233	F	PS	07/08/87	06/18/87		
BY-110	NCPLX	SOUND	IS/IP	398	0	9	0.0	213.3	9	0	103	295	M	S	09/10/79	07/26/84		
BY-111	NCPLX	SOUND	IS/IP	459	0	0	0.0	313.2	0	0	0	459	P	M	06/30/99	10/31/86		
BY-112	NCPLX	SOUND	IS/IP	291	0	8	0.0	116.4	8	0	0	291	P	M	06/30/99	04/14/88		
12 SINGLE-SHELL TANKS TOTALS:				4387	0	390	0.0	1567.8	390	282	754	3633						

TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

September 30, 1999

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION					SEE FOOTNOTES FOR THESE CHANGES
TANK	WASTE MAT'L	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATE (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	
C TANK FARM STATUS																		
C-101	NCPLX	ASMD LKR	IS/IP	88	0	3	0.0	0.0	3	0	88	0	M	M	11/29/83	11/17/87		
C-102	DC	SOUND	IS/IP	316	0	30	0.0	46.7	30	17	316	0	F	FP	09/30/95	05/18/76	08/24/95	
C-103	NCPLX	SOUND	/PI	198	79	4	0.0	0.0	83	83	119	0	F	S	12/31/98	07/28/87		(j)
C-104	CC	SOUND	IS/IP	295	0	11	0.0	0.0	11	5	295	0	FP	P	09/22/89	07/25/90		
C-105	NCPLX	SOUND	IS/PI	135	46	30	0.0	0.0	32	9	89	0	F	S	06/30/99	08/05/94	08/30/95	
C-106	NCPLX	SOUND	/PI	50	42	0	0.0	0.0	42	37	8	0	F	PS	09/30/99	08/05/94	08/08/94	(h)
C-107	DC	SOUND	IS/IP	257	0	24	0.0	40.8	24	15	257	0	F	S	06/30/99	00/00/00		
C-108	NCPLX	SOUND	IS/IP	66	0	0	0.0	0.0	0	0	66	0	M	S	02/24/84	12/05/74	11/17/84	
C-109	NCPLX	SOUND	IS/IP	66	4	0	0.0	0.0	4	0	62	0	M	PS	11/29/83	01/30/76		
C-110	DC	ASMD LKR	IS/IP	178	1	28	0.0	15.5	29	15	177	0	F	FMP	06/14/95	08/12/86	05/23/95	
C-111	NCPLX	ASMD LKR	IS/IP	57	0	0	0.0	0.0	0	0	57	0	M	S	04/28/82	02/25/70	02/02/95	
C-112	NCPLX	SOUND	IS/IP	104	0	32	0.0	0.0	32	26	104	0	M	PS	09/18/90	09/18/90		
C-201	NCPLX	ASMD LKR	IS/IP	2	0	0	0.0	0.0	0	0	2	0	P	MP	03/31/82	12/02/86		
C-202	EMPTY	ASMD LKR	IS/IP	1	0	0	0.0	0.0	0	0	1	0	P	M	01/19/79	12/09/86		
C-203	NCPLX	ASMD LKR	IS/IP	5	0	0	0.0	0.0	0	0	5	0	P	MP	04/28/82	12/09/86		
C-204	NCPLX	ASMD LKR	IS/IP	3	0	0	0.0	0.0	0	0	3	0	P	MP	04/28/82	12/09/86		
16 SINGLE-SHELL TANKS TOTALS:				1821	172	162	0.0	103.0	290	207	1649	0						
S TANK FARM STATUS																		
S-101	NCPLX	SOUND	/PI	427	12	68	0.0	0.0	80	80	211	204	F	PS	12/31/98	03/18/88		(j)
S-102	DSSF	SOUND	/PI	514	0	212	0.0	38.0	212	206	105	409	P	FP	07/31/99	03/18/88		(f)
S-103	DSSF	SOUND	/PI	231	0	105	0.9	18.1	105	93	9	222	M	S	06/30/99	06/01/89		(l)
S-104	NCPLX	ASMD LKR	IS/IP	294	1	28	0.0	0.0	29	23	293	0	M	M	12/20/84	12/12/84		
S-105	NCPLX	SOUND	IS/IP	456	0	35	0.0	114.3	35	13	2	454	MP	S	09/26/88	04/12/89		
S-106	NCPLX	SOUND	/PI	337	0	34	5.4	195.0	34	12	0	337	P	FP	09/31/99	03/17/89	09/12/94	(g)
S-107	NCPLX	SOUND	/PI	376	14	47	0.0	0.0	61	61	293	69	F	PS	06/30/99	03/12/87		(i)
S-108	NCPLX	SOUND	IS/PI	450	0	4	0.0	199.8	4	0	5	445	P	MP	06/30/99	03/12/87	12/03/96	
S-109	NCPLX	SOUND	/PI	507	0	83	0.0	111.0	83	83	13	494	F	PS	09/30/75	12/31/98		(j)
S-110	NCPLX	SOUND	IS/PI	390	0	30	0.0	203.1	30	23	131	259	F	PS	05/14/92	03/12/87	12/11/96	
S-111	NCPLX	SOUND	/PI	472	111	64	0.0	3.3	175	175	117	244	P	FP	09/30/99	08/10/89		(j)
S-112	NCPLX	SOUND	/PI	523	0	70	0.0	125.1	70	70	6	517	P	FP	12/31/98	03/24/87		(j)
12 SINGLE-SHELL TANKS TOTALS:				4977	138	780	6.3	1007.7	918	839	1185	3654						

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TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

September 30, 1999

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION					SEE FOOTNOTES FOR THESE CHANGES
TANK	WASTE MAT'L	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATE (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	
SX TANK FARM STATUS																		
SX-101	DC	SOUND	/PI	448	0	99	0.0	0.0	99	99	0	448	P	FP	06/30/99	03/10/89		(e)(j)
SX-102	DSSF	SOUND	/PI	514	134	82	0.0	0.0	216	216	0	380	P	M	09/30/99	01/07/88		(j)
SX-103	NCPLX	SOUND	/PI	634	0	132	0.0	0.0	132	132	115	519	F	S	06/30/99	12/17/87		(j)
SX-104	DSSF	ASMD LKR	/PI	467	0	55	0.0	231.3	55	44	136	331	F	S	07/31/99	09/08/88	02/04/98	(a)
SX-105	DSSF	SOUND	/PI	637	0	141	0.0	0.0	141	141	65	572	P	F	06/30/99	06/15/88		(j)
SX-106	NCPLX	SOUND	/PI	386	0	54	14.6	133.0	54	44	0	386	F	PS	09/30/99	06/01/89		(b)
SX-107	NCPLX	ASMD LKR	IS/IP	104	0	5	0.0	0.0	5	0	104	0	P	M	04/28/82	03/06/87		
SX-108	NCPLX	ASMD LKR	IS/IP	87	0	5	0.0	0.0	5	0	87	0	P	M	12/31/93	03/06/87		
SX-109	NCPLX	ASMD LKR	IS/IP	250	0	48	0.0	0.0	48	25	75	175	P	M	06/30/99	05/21/86		
SX-110	NCPLX	ASMD LKR	IS/IP	62	0	0	0.0	0.0	0	0	62	0	M	PS	10/06/76	02/20/87		
SX-111	NCPLX	ASMD LKR	IS/IP	122	0	7	0.0	0.0	7	0	122	0	M	PS	06/30/99	06/09/94		
SX-112	NCPLX	ASMD LKR	IS/IP	108	0	3	0.0	0.0	3	0	108	0	P	M	06/30/99	03/10/87		
SX-113	NCPLX	ASMD LKR	IS/IP	31	0	0	0.0	0.0	0	0	31	0	P	M	06/30/99	03/18/88		
SX-114	NCPLX	ASMD LKR	IS/IP	181	0	14	0.0	0.0	14	0	147	34	P	M	04/28/82	02/26/87		
SX-115	NCPLX	ASMD LKR	IS/IP	12	0	0	0.0	0.0	0	0	12	0	P	M	04/28/82	03/31/88		
15 SINGLE-SHELL TANKS TOTALS:				4043	134	645	14.6	364.3	779	701	1064	2845						

**T TANK FARM STATUS**

T-101	NCPLX	ASMD LKR	IS/PI	102	1	16	0.0	25.3	17	0	37	64	F	S	06/30/99	04/07/93		
T-102	NCPLX	SOUND	IS/IP	32	13	0	0.0	0.0	13	13	19	0	P	FP	08/31/84	06/28/89		
T-103	NCPLX	ASMD LKR	IS/IP	27	4	0	0.0	0.0	4	0	23	0	F	FP	11/29/83	07/03/84		
T-104	NCPLX	SOUND	/PI	326	0	29	0.0	149.5	29	23	326	0	P	MP	04/30/99	06/29/89		(c)
T-105	NCPLX	SOUND	IS/IP	98	0	23	0.0	0.0	23	17	98	0	P	F	05/29/87	05/14/87		
T-106	NCPLX	ASMD LKR	IS/IP	21	2	0	0.0	0.0	2	0	19	0	P	FP	04/28/82	06/29/89		
T-107	NCPLX	ASMD LKR	IS/PI	173	0	22	0.0	11.0	22	12	173	0	P	FP	05/31/96	07/12/84	05/09/96	
T-108	NCPLX	ASMD LKR	IS/IP	44	0	0	0.0	0.0	0	0	21	23	P	M	06/30/99	07/17/84		

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TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

September 30, 1999

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION					SEE FOOTNOTES FOR THESE CHANGES
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATE (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	
T-109	NCPLX	ASMD LKR	IS/IP	58	0	0	0.0	0.0	0	0	0	58	M	M	06/30/99	02/25/93		(d)
T-110	NCPLX	SOUND	/PI	347	0	31	0.0	50.3	31	25	347	0	P	FP	07/31/99	07/12/84		
T-111	NCPLX	ASMD LKR	IS/PI	446	0	34	0.0	9.6	34	29	446	0	P	FP	04/18/94	04/13/94	02/13/95	
T-112	NCPLX	SOUND	IS/IP	67	7	0	0.0	0.0	7	7	60	0	P	FP	04/28/82	08/01/84		
T-201	NCPLX	SOUND	IS/IP	29	1	3	0.0	0.0	4	0	28	0	M	PS	05/31/78	04/15/86		
T-202	NCPLX	SOUND	IS/IP	21	0	2	0.0	0.0	2	0	21	0	FP	P	07/12/81	07/06/89		
T-203	NCPLX	SOUND	IS/IP	35	0	4	0.0	0.0	4	0	35	0	M	PS	01/31/78	08/03/89		
T-204	NCPLX	SOUND	IS/IP	38	0	4	0.0	0.0	4	0	38	0	FP	P	07/22/81	08/03/89		
16 SINGLE-SHELL TANKS TOTALS:				1864	28	168	0.0	245.7	196	126	1691	145						
TX TANK FARM STATUS																		
TX-101	NCPLX	SOUND	IS/IP/CCS	87	3	2	0.0	0.0	5	0	74	10	F	P	06/30/99	10/24/85		(d)
TX-102	NCPLX	SOUND	IS/IP/CCS	217	0	22	0.0	94.4	22	0	0	217	M	S	08/31/84	10/31/85		
TX-103	NCPLX	SOUND	IS/IP/CCS	157	0	15	0.0	68.3	15	0	0	157	F	S	06/30/99	10/31/85		
TX-104	NCPLX	SOUND	IS/IP/CCS	65	5	14	0.0	3.6	15	0	23	37	F	FP	06/30/99	10/16/84		
TX-105	NCPLX	ASMD LKR	IS/IP/CCS	609	0	20	0.0	121.5	20	0	0	609	M	PS	08/22/77	10/24/89		
TX-106	NCPLX	SOUND	IS/IP/CCS	341	0	10	0.0	134.6	10	0	0	341	M	S	06/30/99	10/31/85		
TX-107	NCPLX	ASMD LKR	IS/IP/CCS	36	1	1	0.0	0.0	2	0	8	27	FP	FP	06/30/99	10/31/85		
TX-108	NCPLX	SOUND	IS/IP/CCS	134	0	0	0.0	13.7	0	0	6	128	P	FP	06/30/99	09/12/89		
TX-109	NCPLX	SOUND	IS/IP/CCS	384	0	10	0.0	72.3	10	0	384	0	F	PS	06/30/99	10/24/89		
TX-110	NCPLX	ASMD LKR	IS/IP/CCS	462	0	15	0.0	115.1	15	0	37	425	M	PS	06/30/99	10/24/89		
TX-111	NCPLX	SOUND	IS/IP/CCS	370	0	9	0.0	98.4	9	0	43	327	M	PS	06/30/99	09/12/89		
TX-112	NCPLX	SOUND	IS/IP/CCS	649	0	24	0.0	94.0	24	0	0	649	P	PS	05/30/83	11/19/87		
TX-113	NCPLX	ASMD LKR	IS/IP/CCS	607	0	16	0.0	19.2	16	0	183	424	M	PS	06/30/99	04/11/83	09/23/94	
TX-114	NCPLX	ASMD LKR	IS/IP/CCS	535	0	15	0.0	104.3	15	0	4	531	M	PS	06/30/99	04/11/83	02/17/95	
TX-115	NCPLX	ASMD LKR	IS/IP/CCS	568	0	19	0.0	99.1	19	0	0	568	M	S	06/30/99	06/15/88		
TX-116	NCPLX	ASMD LKR	IS/IP/CCS	631	0	23	0.0	23.8	23	0	68	563	M	PS	06/30/99	10/17/89		
TX-117	NCPLX	ASMD LKR	IS/IP/CCS	626	0	8	0.0	54.3	8	0	29	597	M	PS	06/30/99	04/11/83		
TX-118	NCPLX	SOUND	IS/IP/CCS	300	0	27	0.0	89.1	27	0	34	266	F	S	06/30/99	12/19/79		
18 SINGLE-SHELL TANKS TOTALS:				6778	9	250	0.0	1205.7	255	0	893	5876						

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TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

September 30, 1999

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUM		VOLUME DETERMINATION			PHOTOS/VIDEOS		SEE FOOTNOTES FOR THESE CHANGES
TANK	WASTE MAT'L	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATE LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	
TY TANK FARM STATUS																		
TY-101	NCPLX	ASMD LKR	IS/IP/CCS	118	0	0	0.0	8.2	0	0	72	46	P	F	06/30/99	08/22/89		
TY-102	NCPLX	SOUND	IS/IP/CCS	64	0	14	0.0	6.6	14	0	0	64	P	FP	06/28/82	07/07/87		
TY-103	NCPLX	ASMD LKR	IS/IP/CCS	162	0	5	0.0	11.5	5	0	162	0	P	FP	07/09/82	08/22/89		
TY-104	NCPLX	ASMD LKR	IS/IP/CCS	46	3	12	0.0	0.0	15	0	43	0	P	FP	06/27/90	11/03/87		
TY-105	NCPLX	ASMD LKR	IS/IP/CCS	231	0	0	0.0	3.6	0	0	231	0	P	M	04/28/82	09/07/89		
TY-106	NCPLX	ASMD LKR	IS/IP/CCS	21	0	0	0.0	0.0	0	0	21	0	P	M	06/30/99	08/22/89		
6 SINGLE-SHELL TANKS TOTALS:				642	3	31	0.0	29.9	34	0	529	110						
U TANK FARM STATUS																		
U-101	NCPLX	ASMD LKR	IS/IP	25	3	0	0.0	0.0	3	0	22	0	P	MP	04/28/82	06/19/79		
U-102	NCPLX	SOUND	/PI	375	18	75	0.0	0.0	93	93	43	314	P	MP	12/31/98	06/08/89	(j)	
U-103	NCPLX	SOUND	/PI	456	1	216	12.0	12.0	217	219	12	443	P	FP	12/31/98	09/13/88	(k)	
U-104	NCPLX	ASMD LKR	IS/IP	122	0	7	0.0	0.0	7	0	79	43	P	MP	06/30/99	08/10/89		
U-105	NCPLX	SOUND	/PI	418	37	83	0.0	0.0	120	120	32	349	FM	PS	12/31/98	07/07/88	(l)	
U-106	NCPLX	SOUND	/PI	226	15	41	0.0	0.0	56	56	0	211	F	PS	12/31/98	07/07/88	(l)	
U-107	DSSF	SOUND	/PI	408	33	82	0.0	0.0	115	115	15	360	F	S	12/31/98	10/27/88	(l)	
U-108	NCPLX	SOUND	/PI	468	24	100	0.0	0.0	124	124	29	415	F	S	12/31/98	09/12/84	(l)	
U-109	NCPLX	SOUND	/PI	465	19	99	0.0	0.0	118	118	35	411	F	F	05/31/99	07/07/88	(l)	
U-110	NCPLX	ASMD LKR	IS/PI	186	0	25	0.0	0.0	25	19	186	0	M	M	12/30/84	12/11/84		
U-111	DSSF	SOUND	/PI	329	0	71	0.0	0.0	71	71	26	303	PS	FPS	12/31/98	06/23/88	(l)	
U-112	NCPLX	ASMD LKR	IS/IP	49	4	0	0.0	0.0	4	0	45	0	P	MP	02/10/84	08/03/89		
U-201	NCPLX	SOUND	IS/IP	5	1	0	0.0	0.0	1	0	4	0	M	S	08/15/79	08/08/89		
U-202	NCPLX	SOUND	IS/IP	5	1	0	0.0	0.0	1	0	4	0	M	S	08/15/79	08/08/89		
U-203	NCPLX	SOUND	IS/IP	3	1	0	0.0	0.0	1	0	2	0	M	S	08/15/79	06/13/89		
U-204	NCPLX	SOUND	IS/IP	3	1	0	0.0	0.0	1	0	2	0	M	S	08/15/79	06/13/89		
16 SINGLE-SHELL TANKS TOTALS:				3543	158	799	12.0	12.0	957	935	536	2849						
GRAND TOTAL				33801	1584	3738	32.9	4899.8	5278	4312	11507	20710						

## TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

September 30, 1999

**THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS**  
**FOOTNOTES:**

Total Waste is calculated as the sum of Sludge and Saltcake plus Supernate.

The category "Interim Isolated" (II) was changed to "Intrusion Prevention" (IP) in June 1993. See section C. "Tank and Equipment Code and Status Definitions."

Stabilization information from WHC-SD-RE-TI-178 SST STABILIZATION RECORD, latest revision, or SST Stabilization or Cognizant Engineer

(a) SX-104 Following information from Cognizant Engineer

Being pumped directly to SY-102. Pumping was interrupted on July 27, 1999, by a leaking saltwell pump and will not resume until pump is replaced or repaired. No pumping in August or September 1999.

Volumes reported are based on Best-Basis Inventory Control values and will be updated annually as pumping data accumulates.

Total Waste: 466.7 Kgal

Supernate: 0.0 Kgal

Drainable Interstitial: 55.3 Kgal

Pumped this month: 0.0 Kgal

Total Pumped: 231.3 Kgal

Drainable Liquid Remaining: 55.3 Kgal

Pumpable Liquid Remaining: 44.3 Kgal

Sludge: 136.0 Kgal

Saltcake: 330.7 Kgal

The values for total waste and saltcake waste have been adjusted to reflect the removal of interstitial fluid thus far. Assuming the waste is still saltcake and with an LOW level of 75 inches, the apparent lower porosity lowers the estimate of DIL, DLR, and PLR.

(b) SX-106 Following information from Cognizant Engineer

Being pumped directly to SY-102.

Volumes reported are based on Best-Basis Inventory Control values and will be updated annually as pumping data accumulates.

Total Waste: 385.5 Kgal

Supernate: 0.0 Kgal

Drainable Interstitial: 53.9 Kgal

Pumped this month: 14.6 Kgal

Total Pumped: 133.0 Kgal

Drainable Liquid Remaining: 53.9 Kgal

Pumpable Liquid Remaining: 44.4 Kgal

Sludge: 0.0 Kgal

Saltcake: 385.5 Kgal

Pumping during September 1999 required 7,600 gal of dilution water and 3,366 gal of water for transfer line flushes; and a total of 247 gal of water was added by pump priming and equipment flushes.

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## TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

September 30, 1999

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

### FOOTNOTES:

(c) T-104 Following information from Cognizant Engineer

Pumping began March 24, 1996. No pumping in August or September 1999.

Volumes reported are based on Best-Basis Inventory Control values and will be updated annually as pumping data accumulates.

Total Waste: 326.0 Kgal

Supernate: 0.0 Kgal

Drainable Interstitial: 28.7 Kgal

Pumped this month: 0.0 Kgal

Total Pumped: 149.5 Kgal

Drainable Liquid Remaining: 28.7 Kgal

Pumpable Liquid Remaining: 22.7 Kgal

Sludge: 326.0 Kgal

Saltcake: 0.0 Kgal

The tank is currently undergoing stabilization evaluation and pumping operations are not expected to resume. The in-tank video is scheduled for October 1999.

(d) T-110 Following information from Cognizant Engineer

Pumping began May 21, 1997. No pumping in September 1999.

Volumes reported are based on Best-Basis Inventory Control values and will be updated annually as pumping data accumulates.

Total Waste: 347 Kgal

Supernate: 0.0 Kgal

Drainable Interstitial: 31.0 Kgal

Pumped this month: 0.0 Kgal

Total Pumped: 60.3 Kgal

Drainable Liquid Remaining: 31.0 Kgal

Pumpable Liquid Remaining: 25.0 Kgal

Sludge: 347.0 Kgal

Saltcake: 0.0 Kgal

This tank is currently undergoing stabilization evaluation. In-tank video is scheduled for October 1999.

(e) BY-105 - Best Basis Inventory Change Control Board made changes based on the results of a 1998 core sample analysis. Saltcake was changed from 345 Kgal to 455 Kgal, and sludge was changed from 158 Kgal to 48 Kgal (which includes 8 Kgal of Portland cement). Changes effective in August 31, 1999, report.

SX-101 - Re-evaluation of tank data was conducted; total waste volume increased by 6 Kgal to 448 Kgal, and saltcake increased from 442 Kgal to 448 Kgal. Changes effect in August 31, 1999, report.

## TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

September 30, 1999

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

### FOOTNOTES:

(f) S-102 Following information from Cognizant Engineer

Pumping commenced March 18, 1999. The waste is pumped directly to SY-102. No pumping in September 1999.

Total Waste: 514.0 K gal  
Supernate: 0.0 Kgal  
Drainable Interstitial: 212.0 Kgal  
Pumped this month: 0.0 Kgal  
Total Pumped: 38.0 Kgal  
Drainable Liquid Remaining: 212.0 Kgal  
Pumpable Liquid Remaining: 206.0 Kgal  
Sludge: 105.0 Kgal  
Saltcake: 409.0 Kgal

Pumping was interrupted August 9, 1999, by a valve problem, and will not resume until repairs are completed.

(g) S-106 Following information from Cognizant Engineer

Pumping commenced on April 15, 1999. The waste is pumped directly to SY-102.

Total Waste: 336.5 Kgal  
Supernate: 0.0 Kgal  
Drainable Interstitial: 33.5 Kgal  
Pumped this Month: 5.4 Kgal  
Total Pumped: 195.0 Kgal  
Drainable Liquid Remaining: 33.5 Kgal  
Pumpable Liquid Remaining: 11.5 Kgal  
Sludge: 0.0 Kgal  
Saltcake: 336.5 Kgal

A total of 5,780 gal of fluid was removed from the tank and a total of 356 gal of water was added by pump priming and equipment flushes, for a net removal of 5,424 gal of tank waste in September 1999. In addition, 51 gal of water were used for transfer line flushes.

The total waste volume has been revised to reflect the removal of 89,500 gal of interstitial fluid from the saltcake. Current data indicates the porosity of the saltcake is approximately 27%.



TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

September 30, 1999

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

FOOTNOTES:

(h) C-106 Following information from WRSS Design Authority

Sluicing in this tank commenced November 18, 1998. Volumes for September 1999:

Total Waste: 50.0 Kgal  
Supernate: 42.0 Kgal  
Drainable Interstitial Liquid: 0.0 Kgal  
Drainable Liquid Remaining: 42.0 Kgal  
Pumpable Liquid Remaining: 37.0 Kgal  
Sludge: 8.0 Kgal  
Saltcake: 0.0 Kgal

These liquid and solids volumes are preliminary and will continue to change as WRSS sluicing operations continue.  
In September 1999, 15.3 inches of sludge were removed, with a cumulative total of 68.6 inches removed since sluicing began in November 1998.

(i) S-103 Following information from Cognizant Engineer

Pumping commenced on June 4, 1999. Waste is pumped directly to SY-102.  
Pumping for September 1999 was interrupted on September 6 by problems with the flammable gas monitors.

Total Waste: 231 Kgal  
Supernate: 0.0 Kgal  
Drainable Interstitial: 105.0 Kgal  
Pumped this Month: 0.9 Kgal  
Total Pumped: 18.1 Kgal  
Drainable Liquid Remaining: 105.0 Kgal  
Pumpable Liquid Remaining: 93.0 Kgal  
Sludge: 9.0 Kgal  
Saltcake: 222.0 Kgal

In September 1999, a total of 1,028 gal of fluid was removed, and a total of 124 gal of water was added by pump priming and equipment flushes, for a net removal of 8,86 gal of tank waste.  
No water was used for transfer line flushes.

(j) DIL, DLR, PLR, and some Total Waste, Supernate, Sludge and Saltcake volumes were changed per document HNF-2978, Rev 1., "Updated Pumpable Liquid Volume Estimates and Jet Pump Durations for Interim Stabilization of Remaining Single-Shell Tanks," J. G. Field, September 1999. Changes effective in September 1999 report.

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## TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

September 30, 1999

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

### FOOTNOTES:

(k) U-103 Following information from Cognizant Engineer.

Saltwell pumping commenced September 26, 1999. The waste is pumped directly to SY-102.

Total Waste: 456.0 Kgal

Supernate: 1.0 Kgal

Drainable Interstitial Liquid: 216.0 Kgal

Pumped this month: 12.0 Kgal

Total Pumped: 12.0 Kgal

Drainable Liquid Remaining: 217.0 Kgal

Pumpable Liquid Remaining: 219.0 Kgal

Sludge: 42.0 Kgal

Saltcake: 443.0 Kgal

In September 1999, 8,064 gal of water were used for dilution and 1,609 gal of water were used for transfer line flushes.

LOW and ENRAF level dated indicate that the supernate pool has not yet been removed (estimated volume of supernate is 13,000 gal).

**APPENDIX F**  
**PERFORMANCE SUMMARY**

**TABLE F-1. PERFORMANCE SUMMARY (Sheet 1 of 2)**  
**WASTE VOLUMES (Kgallons)**  
 September 30, 1999

F-2

**INCREASES/DECREASES IN WASTE VOLUMES  
 STORED IN DOUBLE-SHELL TANKS**

<u>SOURCE</u>	<u>THIS MONTH</u>	<u>FY1999 TO DATE</u>
B PLANT	0	4
PUREX TOTAL (1)	0	0
PPF (1)	0	0
T PLANT (1)	0	0
S PLANT (1)	0	2
300 AREAS (1)	0	0
400 AREAS (1)	0	0
C-108 SOLIDS (INCLUDING FLUSH)	74	164
TRAINING/X-SITE (8)	23	85
TANK FARMS (5)	0	58
SALTWELL LIQUID (7)	59	898
<b>OTHER GAINS</b>	<b>10</b>	<b>134</b>
Slurry increase (2)	5	
Condensate	4	
Instrument change (6)	0	
Unknown (4)	1	
	<u>10</u>	
<b>OTHER LOSSES</b>	<b>-7</b>	<b>-132</b>
Slurry decrease (2)	-3	
Evaporation (3)	-2	
Instrument change (6)	0	
Unknown (4)	-2	
	<u>-7</u>	
<b>EVAPORATED</b>	<b>0</b>	<b>-818</b>
<b>GROUTED</b>	<b>0</b>	<b>0</b>
<b>TOTAL</b>	<b>159</b>	<b>395</b>

**CUMULATIVE EVAPORATION - 1950 TO PRESENT  
 WASTE VOLUME REDUCTION**

<u>FACILITY</u>	
242-B EVAPORATOR (9)	7172
242-T EVAPORATOR (1950s) (9)	9181
IN-TANK SOLIDIFICATION UNIT 1 (9)	11876
IN-TANK SOLIDIFICATION UNIT 2 (9)	15295
IN-TANK SOLID. UNIT 1 & 2 (9)	7965
(after conversion of Unit 1 to a cooler for Unit 2)	8833
242-T (Modified) (9)	24471
242-S EVAPORATOR (9)	41983
242-A EVAPORATOR (10)	73689
242-A Evaporator was restarted April 15, 1994, after having been shut down since April 1989.	
Total waste reduction since restart:	9486
Campaign 94-1	2417 Kgal
Campaign 94-2	2787 Kgal
Campaign 95-1	2161 Kgal
Campaign 96-1	1117 Kgal
Campaign 97-1	351 Kgal
Campaign 97-2	653 Kgal
Campaign 99-1*	818 Kgal
*Campaign began July 24, 1999, and was completed August 13, 1999.	

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TABLE F-1. PERFORMANCE SUMMARY  
(Sheet 2 of 2)

Footnotes:

INCREASES/DECREASES IN WASTE VOLUMES

- (1) Including flush
- (2) Slurry increase/growth is caused by gas generation within the waste.
- (3) Aging waste tanks
- (4) Unknown waste gains or losses
- (5) Includes Tank Farms miscellaneous flushes
- (6) Liquid level measurement instrument changes from the automatic FIC to manual tape (and vice versa) result in unusual gains or losses because the manual tape may rest on an uneven crust surface giving a different reading from that of the automatic FIC.
- (7) Results from pumping of single-shell tanks to double-shell tanks.
- (8) Tracks waste being sent to the double-shell tanks from the "Precampaign Training Run." Evaporator procedures require a training run at least once per year. This also includes pressure testing and flushing of cross-site transfer lines.

WASTE VOLUME REDUCTION

- (9) Currently inoperative.
- (10) Currently operative. The 242-A Evaporator-Crystallizer was started up March 1977, and shut down April 1989 because of regulatory issues, and remained shut down for subsequent upgrading. This evaporator operates under a vacuum, employing evaporative concentration with subsequent crystallization and precipitation of salt crystals (forming saltcake). The evaporator was restarted on April 15, 1994.

The most recent campaign was from July 24, 1999, to August 13, 1999.

**TABLE F-2. SUMMARY OF WASTE TRANSACTIONS IN THE  
DOUBLE-SHELL TANKS**

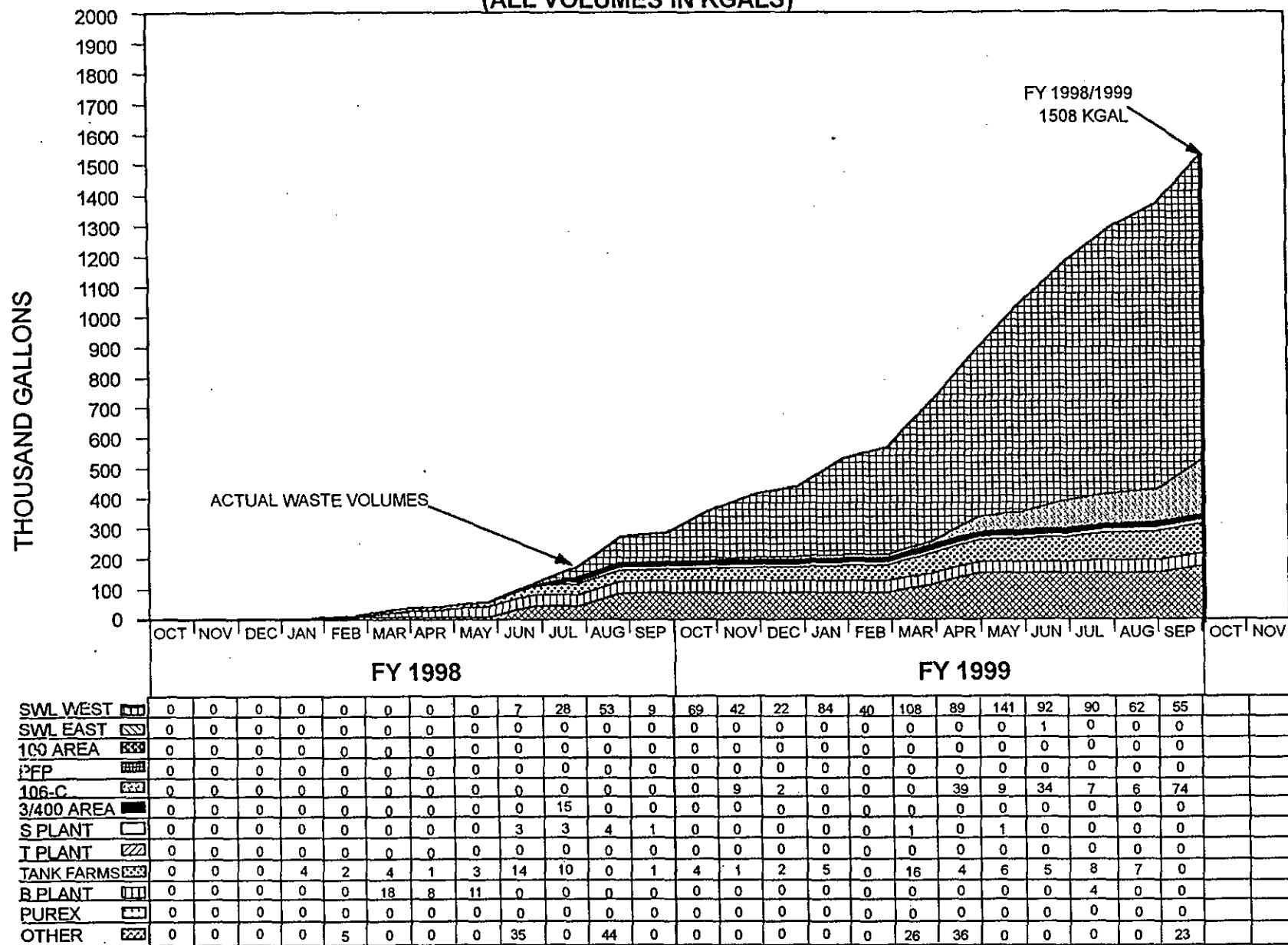
- The DST system received waste transfers/additions from SST Stabilization and cross-site transfer line flush in September.
- There was a net change of +159 Kgal in the DST system for September 1999.
- The total DST inventory as of September 30, 1999 was 18,993 Kgal.
- There was 1 Kgal of Saltwell Liquid (SWL) pumped to the East Area DSTs in September (244BX).
- There was ~55 Kgal of Saltwell Liquid (SWL) pumped to the West Area DSTs (102-SY) in September.
- The SWL numbers are preliminary and are subject to change once cognizant Engineers do a validation, the volumes reported contain actual waste volume plus any water added for dilution and transfer line flushes.
- Tank 102-AY received ~42 Kgal of solids and 32 Kgal of diluent from Tank 106-C in September.  
This brings the total solid transferred from Tank 106-C to ~189 Kgal.
- The volume of solids transferred from Tank 106-C to Tank 102-AY are preliminary and will be adjusted once settling and engineering evaluations are completed.
- The cross-site transfer line was flushed after completion of the transfer which added ~23 Kgal of water to the DST system.

SEPTEMBER 1999 DST WASTE RECEIPTS					
FACILITY GENERATIONS		OTHER GAINS ASSOCIATED WITH		OTHER LOSSES ASSOCIATED WITH	
SWL (West)	+55 Kgal (2SY)	SLURRY	+5 Kgal	SLURRY	-3 Kgal
SWL (East)	+1 Kgal (8AP)	CONDENSATE	+4 Kgal	CONDENSATE	-2 Kgal
106-C Solids	+42 Kgal (2AY)	INSTRUMENTATION	+0 Kgal	INSTRUMENTATION	-0 Kgal
106-C Supernate	+32 Kgal (2AY)	UNKNOWN	+4 Kgal	UNKNOWN	-2 Kgal
X-Site Flush	+23 Kgal (8AP)	TOTAL	+13 Kgal	TOTAL	-7 Kgal
TOTAL	+153 Kgal				

	ACTUAL DST WASTE RECEIPTS	PROJECTED DST WASTE RECEIPTS	MISC. DST CHANGES (+/-)	WVR	NET DST CHANGE	TOTAL DST VOLUME
OCT98	73	81	4	0	77	18675
NOV98	52	115	17	0	69	18744
DEC98	26	57	-20	0	6	18750
JAN99	89	122	5	0	94	18844
FEB99	40	74	3	0	43	18887
MAR99	151	135	-8	0	143	19030
APR99	168	128	5	0	173	19203
MAY99	157	154	-6	0	151	19354
JUN99	131	204	0	0	131	19485
JUL99	109	-713	2	-434	-323	19162
AUG99	75	127	-19	-384	-328	18834
SEP99	153	149	6	0	159	18993

NOTE: The "PROJECTED DST WASTE RECEIPTS" numbers were updated in December 1998. The Evaporator campaign was rescheduled to July in June 1999.

# COMPARISON OF WASTE VOLUME GENERATIONS FOR HANFORD FACILITIES (ALL VOLUMES IN KGALS)



NOTE: The Other Category is for Waste Generations from, Evaporator Training, Pressure Tests, Cross-Site Transfers

FACILPAC

FIGURE F-1. COMPARISON OF WASTE VOLUME GENERATIONS FOR HANFORD FACILITIES  
(All volumes in Kgals)

**APPENDIX G**  
**MISCELLANEOUS UNDERGROUND STORAGE TANKS**  
**AND SPECIAL SURVEILLANCE FACILITIES**



**TABLE G-1. EAST AND WEST AREA MISCELLANEOUS UNDERGROUND STORAGE TANKS  
AND SPECIAL SURVEILLANCE FACILITIES**

ACTIVE - still running transfers through the associated diversion boxes or pipeline encasements

September 30, 1999

<u>FACILITY</u>	<u>LOCATION</u>	<u>PURPOSE (receives waste from:)</u>	<u>(Gallons)</u>	<u>MONITORED BY</u>	<u>REMARKS</u>
<b>EAST AREA</b>					
241-A-302-A	A Farm	A-151 DB	949	SACS/ENRAF/Manually	Foamed over Catch Tank pump pit & div. box to prevent intrusion
241-ER-311	B Plant	ER-151, ER-152 DB	7484	SACS/FIC/Manually	
241-AX-152	AX Farm	AX-152 DB	0	SACS/MT	Pumped 11/98
241-AZ-151	AZ Farm	AZ-702 condensate	5975	SACS/FIC/Manually	Volume changes daily - pumped to AZ-102 as needed
241-AZ-154	AZ Farm		25	SACS/MT	
244-BX-TK/SMP	BX Complex	DCRT - Receives from several farms	25346	SACS/MT	Using Manual Tape for tank/sump, scheduled to be pumped in 9/99, on hold - leak detection problems
244-A-TK/SMP	A Complex	DCRT - Receives from several farms	3134	MCS/SACS/WTF	WTF- pumped 3/99 to AP-108
A-350	A Farm	Collects drainage	285	MCS/SACS/WTF	WTF (uncorrected) pumped as needed
AR-204	AY Farm	Tanker trucks from various facilities	290	DIP TUBE	Alarms on SACS-pumped to AP-108, 7/99
A-417	A Farm		12051	SACS/WTF	WTF (uncorrected) pumped 4/98
CR-003-TK/SUMP	C Farm	DCRT	3628	MT/ZIP CORD	Zip cord in sump O/S 3/11/96, water intrusion, 1/98
<b>WEST AREA</b>					
241-TX-302-C	TX Farm	TX-154 DB	167	SACS/ENRAF/Manually	
241-U-301-B	U Farm	U-151, U-152, U-153, U-252 DB	8095	SACS/ENRAF/Manually	Returned to service 12/30/93
241-UX-302-A	U Plant	UX-154 DB	2070	SACS/ENRAF/Manually	
241-S-304	S Farm	S-151 DB	130	SACS/ENRAF/Manually	Replaced S-302-A, 10/91; ENRAF installed 7/98
244-S-TK/SMP	S Farm	DCRT - Receives from several farms	7622	SACS/Manually	Sump not alarming.
244-TX-TK/SMP	TX Farm	DCRT - Receives from several farms	15706	SACS/Manually	WTF (uncorrected)
Vent Station Catch Tank		Cross Country Transfer Line	339	SACS/Manually	MT

**Total Active Facilities 18**

**LEGEND:**

- DB - Diversion Box
- DCRT - Double-Contained Receiver Tank
- TK - Tank
- SMP - Sump
- FIC - Food Instrument Corporation measurement device
- MT - Manual Tape
- Zip Cord - surface level measurement device
- WTF - Weight Time Factor - can be recorded as WTF, CWF (corrected), and Uncorrected WTF
- SACS - Surveillance Automated Control System
- MCS - Monitor and Control System
- Manually - Not connected to any automated system
- O/S - Out of Service
- ENRAF - Surface Level Measuring Device

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TABLE G-2. EAST AREA INACTIVE MISC. UNDERGROUND STORAGE TANKS AND SPECIAL SURV. FACILITIES

INACTIVE - no longer receiving waste transfers

September 30, 1999

<u>FACILITY</u>	<u>LOCATION</u>	<u>RECEIVED WASTE FROM:</u>	<u>(Gallons)</u>	<u>MONITORED BY</u>	<u>REMARKS</u>
216-BY-201	BY Farm	TBP Waste Line	Unknown	NM	(216-BY)
241-A-302-B	A Farm	A-152 DB	5720	SACS/MT	Isolated 1985, Project B-138 Interim Stabilized 1990, Rain intrusion
241-AX-151	N of PUREX	PUREX	Unknown	NM	Isolated 1985
241-B-301-B	B Farm	B-151, B-152, B-153, B-252 DB	22250	NM	Isolated 1985 (1)
241-B-302-B	B Farm	B-154 DB	4930	NM	Isolated 1985 (1)
241-BX-302-A	BX Farm	BR-152, BX-153, BXR-152, BYR-152 DB	840	NM	Isolated 1985 (1)
241-BX-302-B	BX Farm	BX-154 DB	1040	NM	Isolated 1985 (1)
241-BX-302-C	BX Farm	BX-155 DB	870	NM	Isolated 1985 (1)
241-C-301-C	C Farm	C-151, C-152, C-153, C-252 DB	10470	NM	Isolated 1985 (1)
241-CX-70	Hot Semi-	Transfer lines	Unknown	NM	Isolated, Decommission Project,
241-CX-72	Works	Transfer lines	650	NM	See Dwg H-2-95-501, 2/5/87
241-ER-311A	SW B Plant	ER-151 DB	Unknown	NM	Isolated
244-AR VAULT	A Complex	Between farms & B-Plant	Unknown	NM	Not actively being used. Systems activated for final clean-out.
244-BXR-TK/SMP-001	BX Farm	Transfer lines	7200	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-002	BX Farm	Transfer lines	2180	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-003	BX Farm	Transfer lines	1810	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-011	BX Farm	Transfer lines	7100	NM	Interim Stabilization 1985 (1)
361-B-TANK	B Plant	Drainage from B-Plant	Unknown	NM	Interim Stabilization 1985 (1)

**Total East Area inactive facilities 18**

**LEGEND:** DB - Diversion Box  
DCRT - Double-Contained Receiver Tank  
MT - Manual Tape  
SACS - Surveillance Automated Control System  
TK - Tank  
SMP - Sump  
R - Usually denotes replacement  
NM - Not Monitored

(1) SOURCE: WASTE STORAGE TANK STATUS & LEAK DETECTION CRITERIA document

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TABLE G-3. WEST AREA INACTIVE MISC. UNDERGROUND STORAGE TANKS AND SPECIAL SURV. FACILITIES

INACTIVE - no longer receiving waste transfers

September 30, 1999

FACILITY	LOCATION	RECEIVED WASTE FROM:	(Gallons)	MONITORED	
				BY	REMARKS
216-TY-201	E. of TY Farm	Supernate from T-112	Unknown	NM	Isolated
231-W-151-001	N. of Z Plant	231-Z Floor drains	Unknown	NM	Inactive, last data 1974
231-W-151-002	N. of Z Plant	231-Z Floor drains	Unknown	NM	Inactive, last data 1974
240-S-302	S Farm	240-S-151 DB	8473	SACS/ENRAF	Assumed Leaker EPDA 85-04
241-S-302-A	S Farm	241-S-151 DB	0		Assumed Leaker TF-EFS-90-042
Partially filled with grout 2/91, determined still assumed leaker after leak test. Manual FIC readings are unobtainable due to dry grouted surface.					
CASS monitoring system retired 2/23/99; intrusion readings discontinued. S-304 replaced S-302-A					
241-S-302-B	S Farm	S Encasements	Unknown	NM	Isolated 1985 (1)
241-SX-302	SX Farm	SX-151 DB, 151 TB	Unknown	NM	Isolated 1987
241-SX-304	SX Farm	SX-152 Transfer Box, SX-151 DB	Unknown	NM	Isolated 1985 (1)
241-T-301	T Farm	DB T-151, -151, -153, -252	Unknown	NM	Isolated 1985 (241-T-301B)
241-TX-302	TX Farm	TX-153 DB	Unknown	NM	Isolated 1985 (1)
241-TX-302-X-B	TX Farm	TX Encasements	Unknown	NM	Isolated 1985 (1)
241-TX-302-B	TX Farm	TX-155 DB	1600	SACS/MT	New MT installed 7/16/93
241-TX-302B(R)	E. of TX Farm	TX-155 DB	Unknown	NM	Isolated
241-TY-302-A	TY Farm	TX-153 DB	Unknown	NM	Isolated 1985 (1)
241-TY-302-B	TY Farm	TY Encasements	Unknown	NM	Isolated 1985 (1)
241-Z-8	E. of Z Plant	Recuplex waste	Unknown	NM	Isolated, 1974, 1975
242-T-135	T Evaporator	T Evaporator	Unknown	NM	Isolated
242-TA-R1	T Evaporator	Z Plant waste	Unknown	NM	Isolated
243-S-TK-1	N. of S Farm	Pers. Decon. Facility	Unknown	NM	Isolated
244-U-TK/SMP	U Farm	DCRT - Receives from several farms	Unknown	NM	Not yet in use
244-TXR VAULT	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-001	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-002	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-003	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
270-W	SE of U Plant	Condensate from U-221	Unknown	NM	Isolated 1970
361-T-TANK	T Plant	Drainage from T-Plant	Unknown	NM	Isolated 1985 (1)
361-U-TANK	U Plant	Drainage from U-Plant	Unknown	NM	Interim Stabilized, MT removed 1984 (1)

Total West Area inactive facilities 27

LEGEND:

- DB - Diversion Box, TB - Transfer Box
- DCRT - Double-Contained Receiver Tank
- TK - Tank
- SMP - Bump
- R - Usually denotes replacement
- FIC - Surface Level Monitoring Device
- MT - Manual Tape
- O/S - Out of Service
- SACS - Surveillance Automated Control System
- NM - Not Monitored
- ENRAF - Surface Level Monitoring Device

(1) SOURCE: WASTE STORAGE TANK STATUS &amp; LEAK DETECTION CRITERIA document

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APPENDIX H  
LEAK VOLUME ESTIMATES

TABLE H-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES (Sheet 1 of 5)

September 30, 1999

Tank Number	Date Declared Confirmed or Assumed Leaker (3)	Volume Gallons (2)	Associated KiloCuries 137 cs (10)	Interim Stabilized Date (11)	Leak Estimate	
					Updated	Reference
241-A-103	1987	5500 (8)		06/88	1987	(j)
241-A-104	1975	500 to 2500	0.8 to 1.8 (q)	09/78	1983	(a)(q)
241-A-105 (1)	1963	10000 to 277000	85 to 760 (b)	07/79	1991	(b)(c)
241-AX-102	1988	3000 (8)		09/88	1989	(h)
241-AX-104	1977	-- (6)		08/81	1989	(g)
241-B-101	1974	-- (6)		03/81	1989	(g)
241-B-103	1978	-- (6)		02/85	1989	(g)
241-B-105	1978	-- (6)		12/84	1989	(g)
241-B-107	1980	8000 (8)		03/85	1986	(d)(f)
241-B-110	1981	10000 (8)		03/85	1986	(d)
241-B-111	1978	-- (6)		06/85	1989	(g)
241-B-112	1978	2000		05/85	1989	(g)
241-B-201	1980	1200 (8)		08/81	1984	(e)(f)
241-B-203	1983	300 (8)		06/84	1986	(d)
241-B-204	1984	400 (8)		06/84	1989	(g)
241-BX-101	1972	-- (6)		09/78	1989	(g)
241-BX-102	1971	70000	50 (l)	11/78	1986	(d)
241-BX-108	1974	2500	0.5 (l)	07/79	1986	(d)
241-BX-110	1976	-- (6)		08/85	1989	(g)
241-BX-111	1984 (13)	-- (6)		03/95	1993	(g)(r)
241-BY-103	1973	<5000		11/97	1983	(a)
241-BY-105	1984	-- (6)		N/A	1989	(g)
241-BY-106	1984	-- (6)		N/A	1989	(g)
241-BY-107	1984	15100 (8)		07/79	1989	(g)
241-BY-108	1972	<5000		02/85	1983	(a)
241-C-101	1980	20000 (8)(10)		11/83	1986	(d)
241-C-110	1984	2000		05/95	1989	(g)
241-C-111	1988	5500 (8)		03/84	1989	(g)
241-C-201 (4)	1988	550		03/82	1987	(i)
241-C-202 (4)	1988	450		08/81	1987	(i)
241-C-203	1984	400 (8)		03/82	1986	(d)
241-C-204 (4)	1988	350		09/82	1987	(i)
241-S-104	1968	24000 (8)		12/84	1989	(g)
241-SX-104	1988	6000 (8)		N/A	1988	(k)
241-SX-107	1964	<5000		10/79	1983	(a)
241-SX-108 (5)(14)	1962	2400 to 35000	17 to 140 (m)(q)(u)	08/79	1991	(m)(q)(u)
241-SX-109 (5)(14)	1965	<10000	<40 (n)(u)	05/81	1992	(n)(u)
241-SX-110	1976	5500 (8)		08/79	1989	(g)
241-SX-111 (14)	1974	500 to 2000	0.6 to 2.4 (l)(q)(u)	07/79	1986	(d)(q)(u)
241-SX-112 (14)	1969	30000	40 (l)(u)	07/79	1986	(d)(u)
241-SX-113	1962	15000	8 (l)	11/78	1986	(d)
241-SX-114	1972	-- (6)		07/79	1989	(g)
241-SX-115	1965	50000	21 (o)	09/78	1992	(o)
241-T-101	1992	7500 (8)		04/93	1992	(p)
241-T-103	1974	<1000 (8)		11/83	1989	(g)
241-T-106	1973	115000 (8)	40 (l)	08/81	1986	(d)
241-T-107	1984	-- (6)		05/96	1989	(g)
241-T-108	1974	<1000 (8)		11/78	1980	(f)
241-T-109	1974	<1000 (8)		12/84	1989	(g)
241-T-111	1979, 1994 (12)	<1000 (8)		02/95	1994	(f)(t)
241-TX-105	1977	-- (6)		04/83	1989	(g)
241-TX-107 (5)	1984	2500		10/79	1986	(d)
241-TX-110	1977	-- (6)		04/83	1989	(g)
241-TX-113	1974	-- (6)		04/83	1989	(g)
241-TX-114	1974	-- (6)		04/83	1989	(g)
241-TX-115	1977	-- (6)		09/83	1989	(g)
241-TX-116	1977	-- (6)		04/83	1989	(g)
241-TX-117	1977	-- (6)		03/83	1989	(g)
241-TY-101	1973	<1000 (8)		04/83	1980	(f)
241-TY-103	1973	3000	0.7 (l)	02/83	1986	(d)
241-TY-104	1981	1400 (8)		11/83	1986	(d)
241-TY-105	1960	35000	4 (l)	02/83	1986	(d)
241-TY-106	1959	20000	2 (l)	11/78	1986	(d)
241-U-101	1959	30000	20 (l)	09/79	1986	(d)
241-U-104	1961	55000	0.09 (l)	10/78	1986	(d)
241-U-110	1975	5000 to 8100 (8)	0.05 (q)	12/84	1986	(d)(q)
241-U-112	1980	8500 (8)		09/79	1986	(d)
87 Tanks		<750,000 - 1,050,000 (7)				

N/A = not applicable (not yet interim stabilized)

TABLE H-1. SINGLE-SHELL LEAK VOLUME ESTIMATES  
(Sheet 2 of 5)

## Footnotes:

- (1) Current estimates [see reference(b)] are that 610 Kgallons of cooling water was added to Tank 241-A-105 from November 1970 to December 1978 to aid in evaporative cooling. In accordance with Dangerous Waste Regulations [Washington Administrative Code 173-303-070 (2)(a)(ii), as amended, Washington State Department of Ecology, 1990, Olympia, Washington], any of this cooling water that has been added and subsequently leaked from the tank must be classified as a waste and should be included in the total leak volume. In August 1991, the leak volume estimate for this tank was updated in accordance with the WAC regulations. Previous estimates excluded the cooling water leaks from the total leak volume estimates because the waste content (concentration) in the cooling water which leaked should be much less than the original liquid waste in the tank (the sludge is relatively insoluble). The total leak volume estimate in this report (10 Kgallons to 277 Kgallons) is based on the following (see References):
- Reference (b) contains an estimate of 5 Kgallons to 15 Kgallons for the initial leak prior to August 1968.
  - Reference (b) contains an estimate of 5 Kgallons to 30 Kgallons for the leak while the tank was being sluiced from August 1968 to November 1970.
  - Reference (b) contains an estimate of 610 Kgallons of cooling water added to the tank from November 1970 to December 1978 but it was estimated that the leakage was small during this period. This reference contains the statement "Sufficient heat was generated in the tank to evaporate most, and perhaps nearly all, of this water." This results in a low estimate of zero gallons leakage from November 1970 to December 1978.
  - Reference (c) contains an estimate the 378 to 410 Kgallons evaporated out of the tank from November 1970 to December 1978. Subtracting the minimum evaporation estimate from the cooling water added estimate provides a range from 0 to 232 Kgallons of cooling water leakage from November 1970 to December 1978.
- |                                | <u>Low Estimate</u> | <u>High Estimate</u> |
|--------------------------------|---------------------|----------------------|
| Prior to August 1968           | 5,000               | 15,000               |
| August 1968 to November 1970   | 5,000               | 30,000               |
| November 1970 to December 1978 | <u>0</u>            | <u>232,000</u>       |
| Totals                         | 10,000              | 277,000              |
- (2) These leak volume estimates do not include (with some exceptions), such things as: (a) cooling/raw water leaks, (b) intrusions (rain infiltration) and subsequent leaks, (c) leaks inside the tank farm but not through the tank liner (surface leaks, pipeline leaks, leaks at the joint for the overflow or fill lines, etc.), and (d) leaks from catch tanks, diversion boxes, encasements, etc.
- (3) In many cases, a leak was suspected long before it was identified or confirmed. For example, reference (d) shows that Tank 241-U-104 was suspected of leaking in 1956. The leak was "confirmed" in 1961. This report lists the "assumed leaker" date of 1961. Using present standards, Tank 241-U-104 would have been declared an assumed leaker in 1956. In 1984, the criteria designations of "suspected leaker," "questionable integrity," "confirmed leaker," "declared leaker," "borderline" and "dormant," were merged into one category now reported as "assumed leaker." See reference (f) for explanation of when, how long, and how fast some of the tanks leaked. It is highly likely that there have been undetected leaks from single-shell tanks because of the nature of their design and instrumentation.

TABLE H-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES

(Sheet 3 of 5)

- (4) The leak volume estimate date for these tanks is before the "declared leaker" date because the tank was in a "suspected leaker" or "questionable integrity" status; however, a leak volume had been estimated prior to the tank being reclassified.
- (5) The increasing radiation levels in drywells and laterals associated with these three tanks could be indicating continuing leak or movement of existing radionuclides in the soil. There is no conclusive way to confirm these observations.
- (6) Methods were used to estimate the leak volumes from these 19 tanks based on the assumption that their cumulative leakage is approximately the same as for 18 of the 24 tanks identified in footnote (9). For more details see reference (g). The total leak volume estimate for these tanks is 150 Kgallons (rounded to the nearest Kgallons), for an average of approximately 8 Kgallons for each of 19 tanks.
- (7) The total has been rounded to the nearest 50 Kgallons. Upper bound values were used in many cases in developing these estimates. It is likely that some of these tanks have not actually leaked.
- (8) Leak volume estimate is based solely on observed liquid level decreases in these tanks. This is considered to be the most accurate method for estimating leak volumes.
- (9) The curie content shown is as listed in the reference document and is not decayed to a consistent date; therefore, a cumulative total is inappropriate.
- (10) Tank 241-C-101 experienced a liquid level decrease in the late 1960s and was taken out of service and pumped to a "minimum heel" in December 1969. In 1970, the tank was classified as a "questionable integrity" tank. Liquid level data show decreases in level throughout the 1970s and the tank was saltwell pumped during the 1970s, ending in April 1979. The tank was reclassified as a "confirmed leaker" in January 1980. See references (q) and (s); refer to reference (s) for information on the potential for there to have been leaks from other C-farm tanks (specifically, C-102, C-103, and C-109).
- (11) These dates indicate when the tanks were declared to be interim stabilized. In some cases, the official interim stabilization documents were issued at a later date. Also, in some cases, the field work associated with interim stabilization was completed at an earlier date.
- (12) Tank T-111 was declared an assumed re-leaker on February 28, 1994, due to a decreasing trend in surface level measurement. This tank was pumped, and interim stabilization completed on February 22, 1995.
- (13) Tank BX-111 was declared an assumed re-leaker in April 1993. Preparations for pumping were delayed, following an administrative hold placed on all tank farm operations in August 1993. Pumping resumed and the tank was declared interim stabilized on March 15, 1995.
- (14) The leak volume and curie release estimates on SX-108, SX-109, SX-111, and SX-112 have been re-evaluated using a Historical Leak Model [see reference (u)]. In general, the model estimates are much higher than the values listed in the table, both for volume and curies released. The values listed in the table do not reflect this revised estimate because, "In particular, it is worth emphasizing that this report was never meant to be a definitive update for the leak baseline at the Hanford Site. It was rather meant to be an attempt to view the issue of leak inventories with a new and different methodology." (This quote is from the first page of the referenced report).

TABLE H-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES  
(Sheet 4 of 5)

## References:

- (a) Murthy, K.S., et al, June 1983, *Assessment of Single-Shell Tank Residual Liquid Issues at Hanford Site*, Washington, PNL-4688, Pacific Northwest Laboratory, Richland, Washington.
- (b) WHC, 1991a, *Tank 241-A-105 Leak Assessment*, WHC-MR-0264, Westinghouse Hanford Company, Richland, Washington.
- (c) WHC, 1991b, *Tank 241-A-105 Evaporation Estimate 1970 Through 1978*, WHC-EP-0410, Westinghouse Hanford Company, Richland, Washington.
- (d) Smith, D. A., January 1986, *Single-Shell Tank Isolation Safety Analysis Report*, SD-WM-SAR-006, Rev. 1, Westinghouse Hanford Company, Richland, Washington.
- (e) McCann, D. C., and T. S. Vail, September 1984, *Waste Status Summary*, RHO-RE-SR-14, Rockwell Hanford Operations, Richland, Washington.
- (f) Catlin, R. J., March 1980, *Assessment of the Surveillance Program of the High-Level Waste Storage Tanks at Hanford*, Hanford Engineering Development Laboratory, Richland, Washington.
- (g) Baumhardt, R. J., May 15, 1989, Letter to R. E. Gerton, U.S. Department of Energy-Richland Operations Office, *Single-Shell Tank Leak Volumes*, 8901832B R1, Westinghouse Hanford Company, Richland, Washington.
- (h) WHC, 1990a, Occurrence Report, *Surface Level Measurement Decrease in Single-Shell Tank 241-AX-102*, WHC-UO-89-023-TF-05, Westinghouse Hanford Company, Richland, Washington.
- (i) Groth, D. R., July 1, 1987, Internal Memorandum to R. J. Baumhardt, *Liquid Level Losses in Tanks 241-C-201, -202 and -204*, 65950-87-517, Westinghouse Hanford Company, Richland, Washington.
- (j) Groth, D. R. and G. C. Owens, May 15, 1987, Internal Memorandum to J. H. Roecker, *Tank 103-A Integrity Evaluation*, Westinghouse Hanford Company, Richland, Washington.
- (k) Campbell, G. D., July 8, 1988, Internal Memorandum to R. K. Welty, *Engineering Investigation: Interstitial Liquid Level Decrease in Tank 241-SX-104*, 13331-88-416, Westinghouse Hanford Company, Richland, Washington.
- (l) ERDA, 1975, *Final Environmental Statement Waste Management Operations, Hanford Reservation, Richland, Washington*, ERDA-1538, 2 vols., U.S. Energy Research and Development Administration, Washington, D.C.
- (m) WHC, 1992a, *Tank 241-SX-108 Leak Assessment*, WHC-MR-0300, Westinghouse Hanford Company, Richland, Washington.
- (n) WHC, 1992b, *Tank 241-SX-109 Leak Assessment*, WHC-MR-0301, Westinghouse Hanford Company, Richland, Washington.
- (o) WHC, 1992c, *Tank 241-SX-115 Leak Assessment*, WHC-MR-0302, Westinghouse Hanford Company, Richland, Washington.



TABLE H-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES  
(Sheet 5 of 5)

- (p) WHC, 1992d, Occurrence Report, *Apparent Decrease in Liquid Level in Single Shell Underground Storage Tank 241-T-101, Leak Suspected; Investigation Continuing*, RL-WHC-TANKFARM-1992-0073, Westinghouse Hanford Company, Richland, Washington.
- (q) WHC, 1990b, *A History of the 200 Area Tank Farms*, WHC-MR-0132, Westinghouse Hanford Company, Richland, Washington.
- (r) WHC, 1993, Occurrence Report, *Single-Shell Underground Waste Storage Tank 241-BX-111 Surface Level Decrease and Change From Steady State Condition*, RL-WHC-TANKFARM-1993-0035, Westinghouse Hanford Company, Richland, Washington.
- (s) WHC, 1993a, *Assessment of Unsaturated Zone Radionuclide Contamination Around Single-Shell Tanks 241-C-105 and 241-C-106*, WHC-SD-EN-TI-185, REV OA, Westinghouse Hanford Company, Richland, Washington.
- (t) WHC, 1994, Occurrence Report, *Apparent Liquid Level Decrease in Single Shell Underground Storage Tank 241-T-111; Declared an Assumed Re-Leaker*, RL-WHC-TANKFARM-1994-0009, Westinghouse Hanford Company, Richland, Washington.
- (u) HNF, 1998, Agnew, S. F. and R. A. Corbin, August 1998, *Analysis of SX Farm Leak Histories - Historical Leak Model*, (HLM), HNF-3233, Rev. 0, Los Alamos National Laboratory, Los Alamos, New Mexico

APPENDIX I

INTERIM STABILIZATION STATUS  
CONTROLLED, CLEAN, AND STABLE STATUS

TABLE I-1. SINGLE-SHELL TANKS INTERIM STABILIZATION STATUS (Sheet 1 of 3)

September 30, 1999

Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method	Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method	Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method
A-101	SOUND	N/A		C-101	ASMD LKR	11/83	AR	T-108	ASMD LKR	11/78	AR
A-102	SOUND	08/89	SN	C-102	SOUND	09/95	JET	T-109	ASMD LKR	12/84	AR
A-103	ASMD LKR	06/88	AR	C-103	SOUND	N/A		T-110	SOUND	N/A	
A-104	ASMD LKR	09/78	AR	C-104	SOUND	09/89	SN	T-111	ASMD LKR	02/95	JET
A-105	ASMD LKR	07/79	AR	C-105	SOUND	10/95	AR	T-112	SOUND	03/81	AR(2)(3)
A-106	SOUND	08/82	AR	C-106	SOUND	N/A		T-201	SOUND	04/81	AR (3)
AX-101	SOUND	N/A		C-107	SOUND	09/85	JET	T-202	SOUND	08/81	AR
AX-102	ASMD LKR	09/88	SN	C-108	SOUND	03/84	AR	T-203	SOUND	04/81	AR
AX-103	SOUND	08/87	AR	C-109	SOUND	11/83	AR	T-204	SOUND	08/81	AR
AX-104	ASMD LKR	08/81	AR	C-110	ASMD LKR	05/95	JET	TX-101	SOUND	02/84	AR
B-101	ASMD IKR	03/81	SN	C-111	ASMD LKR	03/84	SN	TX-102	SOUND	04/83	JET
B-102	SOUND	08/85	SN	C-112	SOUND	09/90	AR	TX-103	SOUND	08/83	JET
B-103	ASMD IKR	02/85	SN	C-201	ASMD LKR	03/82	AR	TX-104	SOUND	09/79	SN
B-104	SOUND	06/85	SN(2)	C-202	ASMD LKR	08/81	AR	TX-105	ASMD LKR	04/83	JET
B-105	ASMD IKR	12/84	AR	C-203	ASMD LKR	03/82	AR	TX-106	SOUND	06/83	JET
B-106	SOUND	03/85	SN	C-204	ASMD LKR	09/82	AR	TX-107	ASMD LKR	10/79	AR
B-107	ASMD LKR	03/85	SN	S-101	SOUND	N/A		TX-108	SOUND	03/83	JET
B-108	SOUND	05/85	SN	S-102	SOUND	N/A		TX-109	SOUND	04/83	JET
B-109	SOUND	04/85	SN	S-103	SOUND	N/A		TX-110	ASMD LKR	04/83	JET
B-110	ASMD LKR	12/84	AR(2)	S-104	ASMD LKR	12/84	AR	TX-111	SOUND	04/83	JET
B-111	ASMD LKR	06/85	SN(2)	S-105	SOUND	09/88	JET	TX-112	SOUND	04/83	JET
B-112	ASMD LKR	05/85	SN	S-106	SOUND	N/A		TX-113	ASMD LKR	04/83	JET
B-201	ASMD LKR	08/81	AR (3)	S-107	SOUND	N/A		TX-114	ASMD LKR	04/83	JET
B-202	SOUND	05/85	AR(2)	S-108	SOUND	12/86	JET	TX-115	ASMD LKR	09/83	JET
B-203	ASMD LKR	06/84	AR	S-109	SOUND	N/A		TX-116	ASMD LKR	04/83	JET
B-204	ASMD LKR	06/84	AR	S-110	SOUND	01/87	JET	TX-117	ASMD LKR	03/83	JET
BX-101	ASMD LKR	09/78	AR	S-111	SOUND	N/A		TX-118	SOUND	04/83	JET
BX-102	ASMD LKR	11/78	AR	S-112	SOUND	N/A		TY-101	ASMD LKR	04/83	JET
BX-103	SOUND	11/83	AR(2)	SX-101	SOUND	N/A		TY-102	SOUND	09/79	AR
BX-104	SOUND	09/89	SN	SX-102	SOUND	N/A		TY-103	ASMD LKR	02/83	JET
BX-105	SOUND	03/81	SN	SX-103	SOUND	N/A		TY-104	ASMD LKR	11/83	AR
BX-106	SOUND	07/85	SN	SX-104	ASMD LKR	N/A		TY-105	ASMD LKR	02/83	JET
BX-107	SOUND	09/90	JET	SX-105	SOUND	N/A		TY-106	ASMD LKR	11/78	AR
BX-108	ASMD LKR	07/79	SN	SX-106	SOUND	N/A		U-101	ASMD LKR	09/79	AR
BX-109	SOUND	09/90	JET	SX-107	ASMD LKR	10/79	AR	U-102	SOUND	N/A	
BX-110	ASMD LKR	08/85	SN	SX-108	ASMD LKR	08/79	AR	U-103	SOUND	N/A	
BX-111	ASMD LKR	03/95	JET	SX-109	ASMD LKR	05/81	AR	U-104	ASMD LKR	10/78	AR
BX-112	SOUND	09/90	JET	SX-110	ASMD LKR	08/79	AR	U-105	SOUND	N/A	
BY-101	SOUND	05/84	JET	SX-111	ASMD LKR	07/79	SN	U-106	SOUND	N/A	
BY-102	SOUND	04/95	JET	SX-112	ASMD LKR	07/79	AR	U-107	SOUND	N/A	
BY-103	ASMD LKR	11/97	JET	SX-113	ASMD LKR	11/78	AR	U-108	SOUND	N/A	
BY-104	SOUND	01/85	JET	SX-114	ASMD LKR	07/79	AR	U-109	SOUND	N/A	
BY-105	ASMD LKR	N/A		SX-115	ASMD LKR	09/78	AR	U-110	ASMD LKR	12/84	AR
BY-106	ASMD LKR	N/A		T-101	ASMD LKR	04/93	SN	U-111	SOUND	N/A	
BY-107	ASMD LKR	07/79	JET	T-102	SOUND	03/81	AR(2)(3)	U-112	ASMD LKR	09/79	AR
BY-108	ASMD LKR	02/85	JET	T-103	ASMD LKR	11/83	AR	U-201	SOUND	08/79	AR
BY-109	SOUND	07/97	JET	T-104	SOUND	N/A		U-202	SOUND	08/79	SN
BY-110	SOUND	01/85	JET	T-105	SOUND	06/87	AR	U-203	SOUND	08/79	AR
BY-111	SOUND	01/85	JET	T-106	ASMD LKR	08/81	AR	U-204	SOUND	08/79	SN
BY-112	SOUND	06/84	JET	T-107	ASMD LKR	05/96	JET				

## LEGEND:

AR = Administratively interim stabilized  
JET = Saltwell jet pumped to remove drainable interstitial liquid  
SN = Supernate pumped (Non-Jet pumped)  
N/A = Not yet interim stabilized  
ASMD LKR = Assumed Leaker

Interim Stabilized Tanks 119  
Not Yet Interim Stabilized 30

Total Single-Shell Tanks 149

TABLE I-1. SINGLE-SHELL TANKS INTERIM STABILIZATION STATUS  
(sheet 2 of 2)

Footnotes:

- (1) These dates indicate when the tanks were actually interim stabilized. In some cases, the official interim stabilization documents were issued at a later date.
- (2) Although tanks B-104, BX-103, T-102 and T-112 met the interim stabilization administrative procedure at the time they were stabilized, they no longer meet the recently updated administrative procedure. The tanks were re-evaluated in 1996 and memo 9654456, J. H. Wicks to Dr. J. K. McClusky, DOE-RL, dated September 1996, was issued which recommended that no further pumping be performed on these tanks, based on an economic evaluation.

An intrusion investigation was completed on tank B-202 in 1996 because of a detected increase in surface level. As a result of this investigation, it was determined that this tank no longer meets the recently updated administrative procedure for 200 series tanks.

- (3) Original Interim Stabilization data are missing on four tanks: B-201, T-102, T-112, and T-201.

TABLE I-2. SINGLE-SHELL TANK INTERIM STABILIZATION MILESTONES

September 30, 1999

(sheet 1 of 2)

New single-shell tank interim stabilization milestones were negotiated in 1999 and are identified in the "Consent Decree." The Consent Decree was approved on August 16, 1999.

CONSENT DECREE  
Attachments A-1 and A-2

Following is the schedule for pumping liquid waste from the remaining twenty-nine (29) single-shell tanks. This schedule is enforceable pursuant to the terms of the Decree except for the "Project Pumping Completion Dates" which are estimates only and not enforceable.

Tank Designation		Pumping Initiated	Projected Pumping Completion Date
1.	T-104	Already initiated	May 30, 1999
2.	T-110	Already initiated	May 30, 1999
3.	SX-104	Already initiated	December 30, 2000
4.	SX-106	Already initiated	December 30, 2000
5.	S-102	Already initiated	March 30, 2001
6.	S-106	Already initiated	March 30, 2001
7.	S-103	Already initiated	March 30, 2001
8.	U-103*	September 26, 1999 (8 months ahead of schedule)	April 15, 2002
9.	U-105*	June 15, 2000	April 15, 2002
10.	U-102*	June 15, 2000	April 15, 2002
11.	U-109*	June 15, 2000	April 15, 2002
12.	A-101	October 30, 2000	September 30, 2003
13.	AX-101	October 30, 2000	September 30, 2003
14.	SX-105	March 15, 2001	February 28, 2003
15.	SX-103	March 15, 2001	February 28, 2003
16.	SX-101	March 15, 2001	February 28, 2003
17.	U-106*	March 15, 2001	February 28, 2003
18.	BY-106	July 15, 2001	June 30, 2003
19.	BY-105	July 15, 2001	June 30, 2003
20.	U-108	December 30, 2001	August 30, 2003
21.	U-107	December 30, 2001	August 30, 2003
22.	S-111	December 30, 2001	August 30, 2003
23.	SX-102	December 30, 2001	August 30, 2003
24.	U-111	November 30, 2002	September 30, 2003
25.	S-109	November 30, 2002	September 30, 2003
26.	S-112	November 30, 2002	September 30, 2003
27.	S-101	November 30, 2002	September 30, 2003
28.	S-107	November 30, 2002	September 30, 2003
29.	C-103	No later than December 30, 2000, DOE will determine whether the organic layer and pumpable liquids will be pumped from Tank C-103 together or separately, and will establish a deadline for initiating pumping of this tank. The parties will incorporate the initiation deadline into this schedule as provided in Section VI of the Decree.	

\* Tanks containing organic complexants.

**TABLE I-2. SINGLE-SHELL TANK INTERIM STABILIZATION MILESTONES**  
(sheet 2 of 2)

Completion of Interim Stabilization. DOE will complete interim stabilization of all 29 single-shell tanks listed above by September 30, 2004.

Percentage of Pumpable Liquid Remaining to be Removed.

93% of Total Liquid	9/30/1999
38% of Organic Complexed Pumpable Liquids	9/30/2000
5% of Organic Complexed Pumpable Liquids	9/30/2001
18% of Total Liquid	9/30/2002
2% of Total Liquid	9/30/2003

The "percentage of pumpable liquid remaining to be removed" is calculated by dividing the volume of pumpable liquid remaining to be removed from tanks not yet interim stabilized by the sum of the total amount of liquid that has been pumped and the pumpable liquid that remains to be pumped from all tanks.

TABLE I-3. SINGLE-SHELL TANKS STABILIZATION STATUS SUMMARY

September 30, 1999

Partial Interim Isolated (PI)		Intrusion Prevention Completed (IP)		Interim Stabilized (IS)	
<u>EAST AREA</u>		<u>EAST AREA</u>	<u>WEST AREA</u>	<u>EAST AREA</u>	<u>WEST AREA</u>
A-101		A-103	S-104	A-102	S-104
A-102		A-104	S-105	A-103	S-105
		A-105		A-104	S-108
AX-101		A-106	SX-107	A-105	S-110
			SX-108	A-106	
BY-102		AX-102	SX-109		SX-107
BY-103		AX-103	SX-110	AX-102	SX-108
BY-105		AX-104	SX-111	AX-103	SX-109
BY-106			SX-112	AX-104	SX-110
BY-109		B-FARM - 16 tanks	SX-113		SX-111
		BX-FARM - 12 tanks	SX-114	B-FARM - 16 tanks	SX-112
C-103			SX-115	BX-FARM - 12 tanks	SX-113
C-105		BY-101			SX-114
C-106		BY-104	T-102	BY-101	SX-115
East Area	11	BY-107	T-103	BY-102	
		BY-108	T-105	BY-103	T-101
<u>WEST AREA</u>		BY-110	T-106	BY-104	T-102
S-101		BY-111	T-108	BY-107	T-103
S-102		BY-112	T-109	BY-108	T-105
S-103			T-112	BY-109	T-106
S-106		C-101	T-201	BY-110	T-107
S-107		C-102	T-202	BY-111	T-108
S-108		C-104	T-203	BY-112	T-109
S-109		C-107	T-204		T-111
S-110		C-108		C-101	T-112
S-111		C-109	TX-FARM - 18 tanks	C-102	T-201
S-112		C-110	TY-FARM - 6 tanks	C-104	T-202
		C-111		C-105	T-203
SX-101		C-112	U-101	C-107	T-204
SX-102		C-201	U-104	C-108	
SX-103		C-202	U-112	C-109	TX-FARM - 18 tanks
SX-104		C-203	U-102	C-110	TY-FARM - 6 tanks
SX-105		C-204	U-202	C-111	
SX-106		East Area	55	C-112	U-101
			U-203	C-201	U-104
			U-204	C-202	U-110
		West Area	53	C-203	U-112
		Total	108	C-204	U-201
T-101				East Area	60
T-104					U-202
T-107					U-203
T-110					U-204
T-111				West Area	59
				Total	119
		Controlled, Clean, and Stable (CCS)			
U-102		<u>EAST AREA</u>	<u>WEST AREA</u>		
U-103		BX-FARM - 12 Tanks	TX-FARM - 18 tanks		
U-105			TY FARM - 6 tanks		
U-106		East Area	12	West Area	24
U-107				Total	36
U-108					
U-109					
U-110					
U-111					
West Area	29				
Total	40				

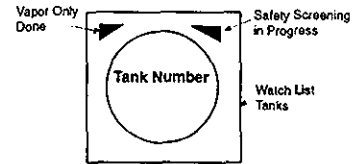
Note: CCS activities have been deferred until funding is available.

**APPENDIX J**  
**CHARACTERIZATION SAFETY SCREENING STATUS**



# Hanford Tank Farm Facilities

## 200 East and West Characterization Safety Screening Status



132 Tanks Safety Screen Complete  
5 Tanks Insufficient Sample  
2 Tank Safety Screening in Progress  
25 Tanks Vapor Sample Only

Status as of September 30, 1999

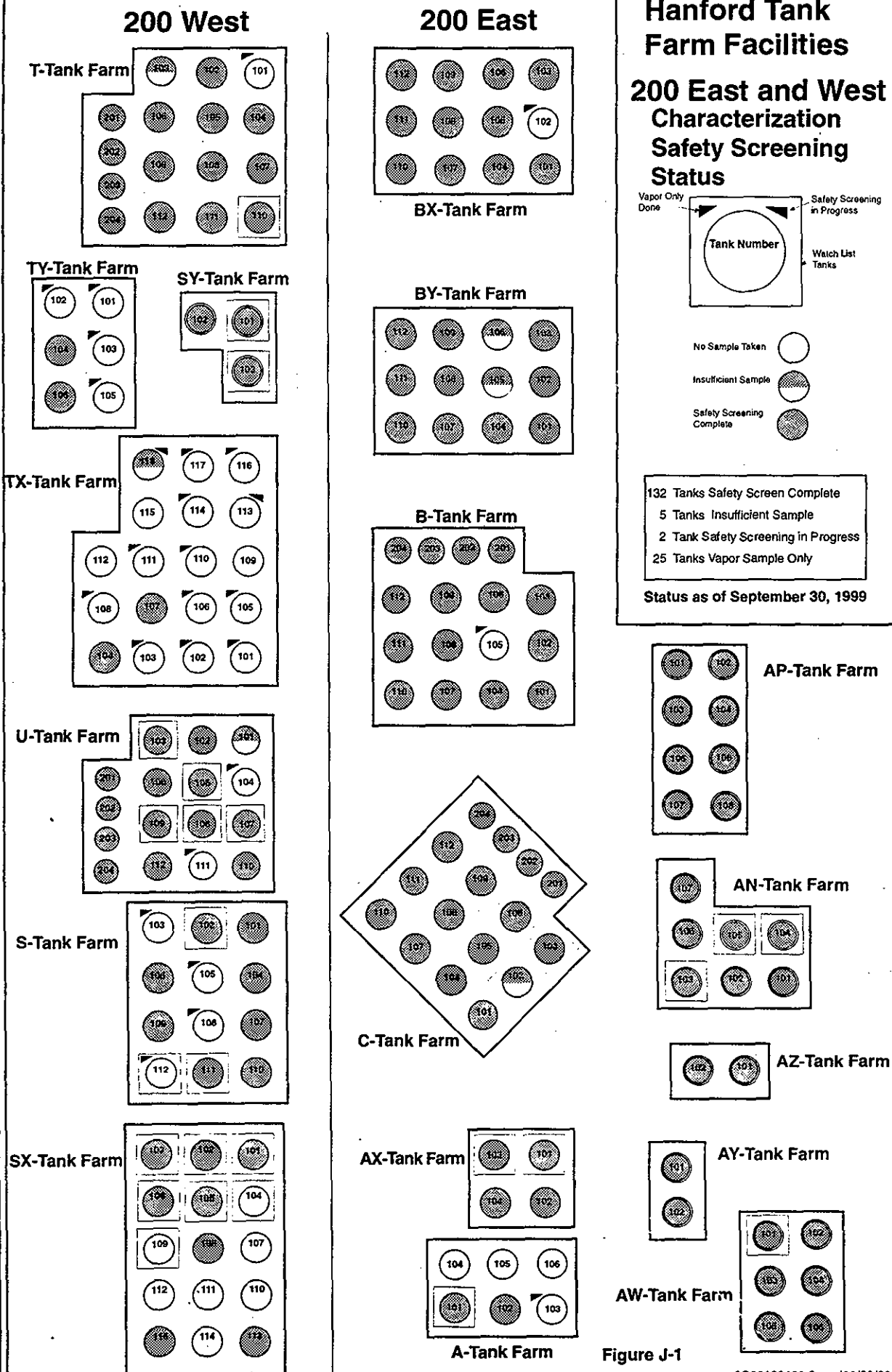


Figure J-1

**FIGURE J-1. CHARACTERIZATION SAFETY SCREENING STATUS LEGEND**  
(Sheet 2 of 2)

September 30, 1999

200 East/West	The chart divides the two areas.
Tank Farms	Each tank farm is represented by a rough schematic of the tank layout and a heading naming the farm.
Circles	Tanks are depicted by a circle for single-shell tanks and a double circle for double-shell tanks. Numbers in the circle represent tank number for that tank farm.
Boxes	A thin line box around a tank inside a tank farm denotes "Watch List" status, in concurrence with Table A-1 of this document.
Circle Shading	The shading in the circle indicates the degree to which safety screening evaluation has taken place. If blank, no solids or liquids from the tank have been sampled and analyses completed to satisfy the Data Quality Objective (DQO) requirements for safety screening. If fully shaded, the safety screening DQO requirements have all been met for that tank. Those tanks which are half shaded are tanks in which characterization sampling was initiated, but was insufficient to satisfy DQO requirements for safety screening.
Corner Triangles	Small triangles near a tank circle give further information on tank sampling and analysis for completing the safety screening DQO requirements. Upper left corner triangles indicate that vapor samples have been taken from the tank, but not solid or liquid phase samples. Upper right hand corner triangles indicate that safety screening sampling and/or analysis is in progress, but a decision on closure of safety screening requirement for that tank has not been made.

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G. D. Johnson	S7-73
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